PRINTING EQUIPMENT *Engineer*

An Industry-wide Technical Publication

january 1953

Manager	Pressroom Foreman
Production Mgr.	Bindery Foreman
Plant Supt.	Mailing Foreman
Platemaking Foreman	Maintenance Supt.
Composing Foreman	Purchasing Agt.

For filing, please return to

the Star HYDRAULIC

Quadding Attachment

(FOR LINOTYPE OR INTERTYPE)

is here!

First shown at the Graphic Arts Exposition of 1950 in Chicago, the STAR HYDRAULIC QUADDER has been perfected during the past two and a half years of intensive testing.

The hydraulic actuation of this model translates itself into a smooth, soft, positive movement of the Vise Jaws, controlled by means **independent of the machine.**

The STAR Quadder has earned an enviable reputation for performance these four short years. The STAR HYDRAULIC QUADDER assures uninterrupted production even beyond the previous models. The simplified mechanism made possible by the use of the Hydraulic principle of actuation, will mean even lower upkeep, if possible, and less maintenance. This puts the STAR Quadder head and shoulders above all others.

We are not given to exaggerated claims, but this time we do not hesitate to say: THIS IS THE ULTIMATE IN QUADDERS.

Write us for the details.

NOTE TO PRESENT STAR QUADDER OWNERS:

No STAR QUADDER is obsolete. Your present one can be converted to a hydraulic type.

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TRADE ★ MARK

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Branch Office: 1327 BROADWAY, KANSAS CITY 6, MO.
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THE MACHINERY TO SEE IN '53...IS COMING FROM STA-HI!

A PREVIEW OF STA-HI PROGRESS

As Sta-Hi observes its Twenty-Fifth Anniversary in 1953, we express our thanks to our many good friends in the newspaper publishing industry who have made possible our success in a highly specialized field of precision graphic arts equipment manufacturing.

The first Sta-Hi Vacuum Dry Mat Former was built in 1928—the forerunner of what is now the complete and world renowned "Sta-Hi Line" of newspaper production machinery.

This year Sta-Hi will have the privilege of presenting further newly developed machinery and methods to ease the task of mechanical personnel and to make possible finer printed newspapers.

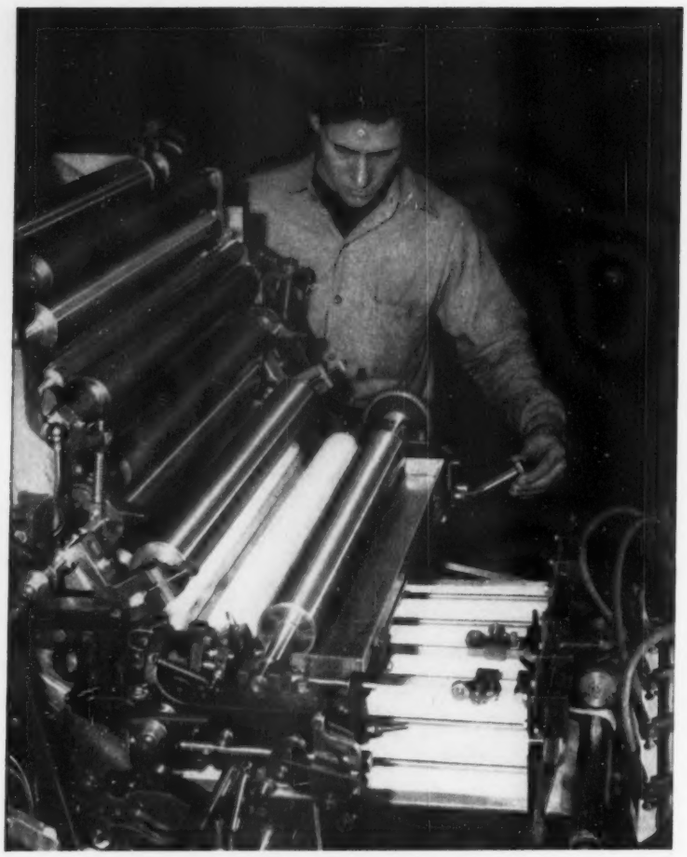
Watch for future announcements. We believe you'll agree that in '53, the machinery to see will come from Sta-Hi!

STA-HI CORPORATION
Box 152, Whittier, California

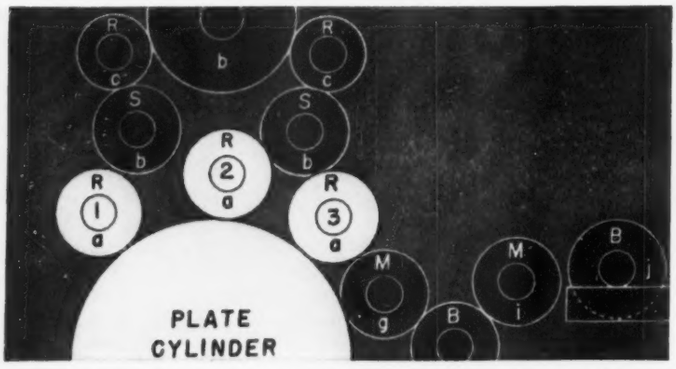
OUR SILVER ANNIVERSARY OF SERVICE 1928 STA-HI 1953 TO AMERICAN NEWSPAPER PUBLISHING

NOW! TWO Great Offset Presses that are years ahead!

New features and standards of accuracy make today's Chief 22 and Chief 29 unquestionably the finest presses in their fields!



ADJUSTMENTS ON THE SIMPLIFIED and streamlined Chiefs are extremely easy to make—some do not even require a tool of any kind.



BIG INK FORM ROLLERS of varied diameters and large drum on Chief 22 do away with shadow effects, insure better ink distribution, help eliminate streaks, and give a smooth lay of solids.

Here are two Chiefs that will make graphic arts history! In designing them, ATF wanted to retain the accessibility, the speed with which changes are accomplished, the simplicity and ruggedness that make these presses world famous. We added new convenience features, improved the feeder, simplified the delivery and provided easier wash-up.

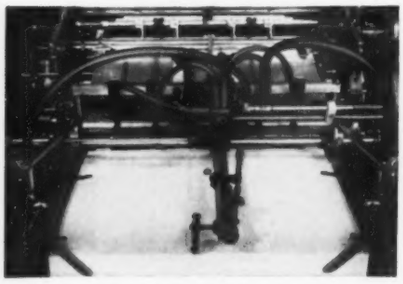
We even looked well into the future . . . and built in the super-accuracy that enables these presses to handle conventional offset with even greater efficiency as well as the rapidly developing new dry offset techniques.

To accomplish these things, we studied these presses right down to the frame, adding scores of innovations and improvements. Substantial investments in new machine tools were made so that the extremely high precision standard we had set up could be met on a production basis.

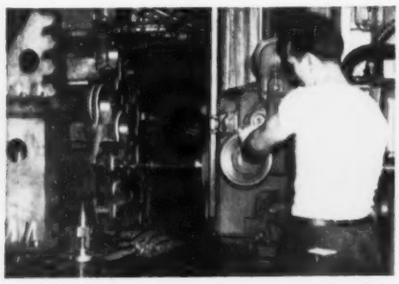
You owe it to yourself to look into these new presses . . . to see how their great accuracy of construction, and their well-planned design result in profitable work of a superlative quality. Your ATF representative will be glad to arrange a demonstration for you.

AMERICAN TYPE FOUNDERS,
a subsidiary of Daystrom, Inc.,
200 Elmora Ave., Elizabeth,
New Jersey.

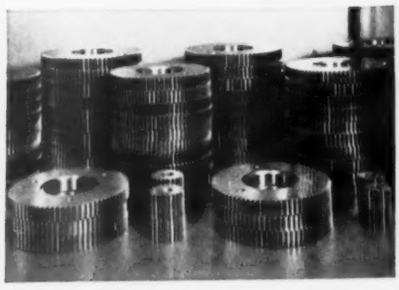
ATF



WALE FLOATING NOZZLES assure steady, sheet-at-a-time feed by providing better separation control and better forwarding on all weights of paper stock.

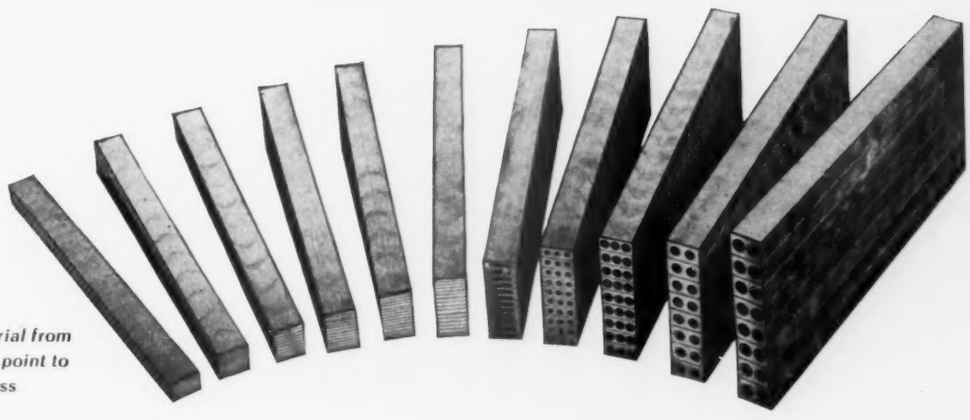


DEVLIEG JIGMIL brings new standards of accuracy to the production of side frames. This boring machine is so accurate it locates gear centers to within .0001 of an inch!



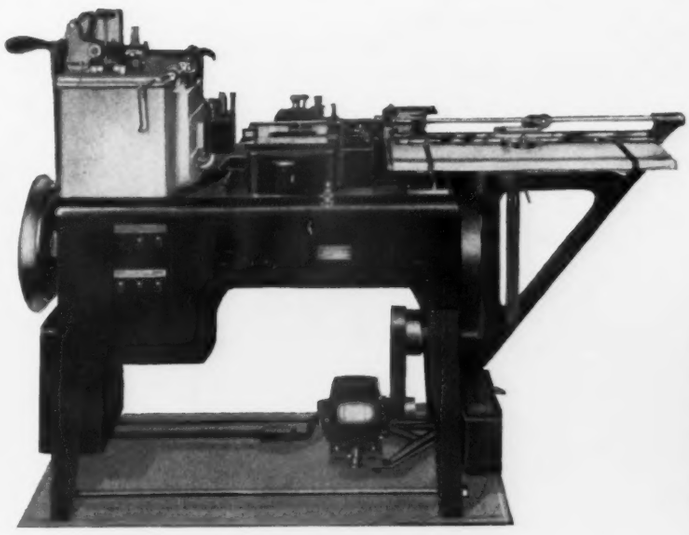
CHIEFS' FORGED ALLOY STEEL GEARS are hardened, ground on a Reishauer gear grinder (an ATF exclusive), and rigidly inspected. They're the industry's most accurate.

The Elrod will help to eliminate your strip material shortages and the inevitable waste of time and labor



Wide range of material from a single machine—1 point to 36 points in thickness

It's a boost to your compositor's efficiency when he turns to the strip material racks and finds an ample supply to see him through a heavy day's work. You can make sure of this with an Elrod installation—an equipment which many plants have learned to depend upon for an abundance of leads, slugs, rule and base material. Available in either gas or electric models.



The Elrod is sturdily but simply built for continuous production of high-quality strip material

Ludlow Typograph Company 2032 Clybourn Avenue, Chicago 14

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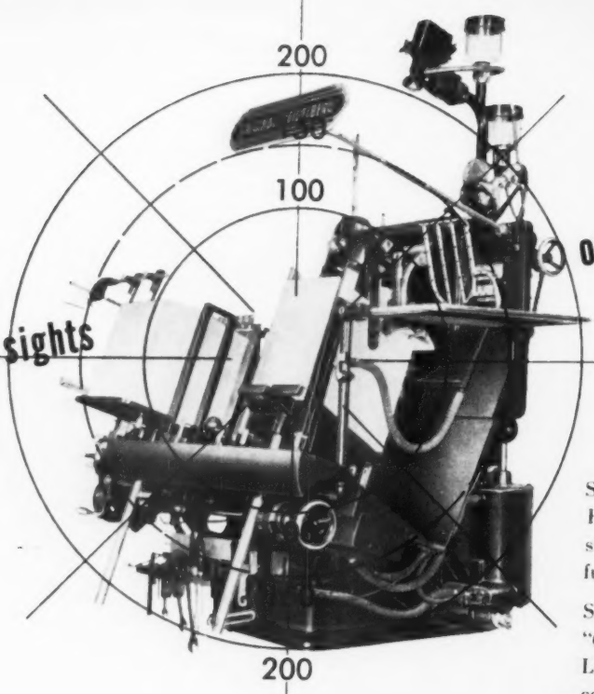
Set your sights on the ORIGINAL HEIDELBERG



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Heidelberg. So why
sights now on the p
future . . . but you

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I want literature and CHECK CHART comparing all platen presses ☐
Call me to arrange a FREE demonstration. ☐

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PRINTING EQUIPMENT *Engineer*

AN INDUSTRY-WIDE TECHNICAL PUBLICATION

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

Volume 83 **Number 4**

PRINTING EQUIPMENT Engineer, Published monthly at 1276 West Third St., Cleveland 13, Ohio. Copyright 1953 by Willsea Publishing Co.

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Subscription price per year, $3.50 in advance in U.S.A. Single copy current issues, 35c; feature issue $1 per copy; December Equipment and Supplies Catalog Issue $2 per copy in United States, $2.50 outside of United States. (U. S. currency). Subscriptions in foreign countries $4.50 (U. S. currency) in advance. Canadian printing plant mechanical and production executives receiving Printing Equipment Engineer under CCA regulations will be charged $1 postage per year in advance to cover additional postage to Canada.

Member Circulation CCA Controlled Audit

Acceptance under section 34.64 P. L. and R., authorized.

Printed in U. S. A.

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Equipment & Supplies

If you wish additional information concerning equipment, supplies and/or technical literature, please make your request to PRINTING EQUIPMENT *Engineer*, 1276 West Third St., Cleveland 13, Ohio.

Photoarc Printing Lamp

THE drop or rise in line voltage is automatically corrected to arc voltage specification with the motor-controlled Photoarc Printing Lamp designed for vertical printing frames, states Macbeth Arc Lamp Co. Recommended for photoengraving, offset and gravure platemakers, the lamp is also adaptable for use on photocomposing machines where repeated exposures with no deviation in light intensity is required.

The Photoarc is available with either counterbalancing or telescoping stands and in 3 kw. or 6 kw. capacity, as desired. Operation of the electronic arc voltage control is accomplished by turning a single switch. Correction of the line voltage to the proper specification is automatic.

Specifications of the two models are as follows: overall height—counterbalancing 71 in., telescoping 60 in.; floor to arc at highest adjustment—counterbalancing 55 in., telescoping 44 in.; floor to arc at lowest adjustment—counterbalancing 32 in., telescoping 27½ in.; reflector size—both models 27 in. by 32 in.; max. floor space—counterbalancing 28 in. by 33 in., telescoping 21 in. by 27 in.; and shipping weight—counterbalancing, 3 kw., 420 lbs., 6 kw., 545 lbs., telescoping, 3 kw., 300 lbs., 6 kw., 425 lbs.

If you desire further details on these lamps, kindly refer to PEE No. 514 in your request.

The Photoarc Printing Lamp with counterbalancing stand, announced by Macbeth Arc Lamp Co., for vertical printing frames. The lamp features electronic arc voltage control.

ATF Chief 24 Press in New Size

AMERICAN Type Founders has reported a new model of the ATF Chief 24 offset press designed to accommodate a 17½ in. by 24½ in. sheet. The Chief 24 is a 6000 i.p.h. press equipped with a stream feeder. Stepless speed control is provided with the ATF Adjustomatic Pulley.

Sponsor states that three adjustments are required to set the stream feeder. Other features are press controls grouped together and a positive chain delivery. Press will handle any stock from 9 lb. onion skin to 6 ply card. Steel speed wheels provide a positive drive to sheets on the conveyor table.

The ink fountain of the press is equipped with 25 control keys and a ratchet-

(*Continued on Page 10*)

Can Any Publisher Afford an Obsolete Composing Room?

SCOTT Ideal Matrix Rolling Machines

The Scott Ideal Matrix Moulding Machine rolls any kind of matrix. The form is started under the upper cylinder by the application of a crossed belt drive which permits the cylinder to vary its surface speed between 1″ and 1¼″ without slippage. This drive allows the upper cylinder to find its own float without strain on the matrix. Powerful rolling mill effect and straight line pressure assures easy operation.

With the Scott free moulding cylinders all imperfections are eliminated, thus producing sharp, full depth rolled mats free from mechanical buckling.

Your inquiry regarding these Scott Ideal Matrix Machines is invited.

Buy with Confidence... Buy **SCOTT**

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PLAINFIELD, NEW JERSEY

NEWSDAY

GARDEN CITY, NEW YORK DAILY

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Hamilton Newsday

At point after point across the country, noteworthy printers and publishers are making dramatic cuts in their operating costs with Hamilton equipment. *Newsday* has done just that with the specially designed "Island Make-up" units illustrated. If you'd like to hear more of this story—if you'd like to see some of the reasons which made *Newsday* choose *Hamilton*—write today for your copy of Hamilton's new 198-page catalog of printing equipment, or for the name of the Hamilton Dealer nearest you.

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There's an "R" in TIMKEN®

HAVE you ever noticed we often spell "TIMKEN"® with an "R"? It's just to the right, near the top of the "N", and it means that "TIMKEN" is the registered trade-mark of The Timken Roller Bearing Company. It's your assurance of getting the highest quality tapered roller bearings, fine alloy steel bars, seamless steel tubing or removable rock bits.

But remember, "TIMKEN" *is* a trade-mark, not a type of product, and you'll find it only on products made by the Timken Company.

Industry has made it a habit to look for the trade-mark "TIMKEN" when buying tapered roller bearings, alloy steel bars or rock bits. Why not make "TIMKEN" your "buy word" too? There's over 50 years of experience behind it. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

MODEL "MMM" SEMI-CYLINDRICAL SCORCHER

This machine can also be used for pre-shrink

FEATURES: Self-conforming Cover • Direct Heat • Full Page Scorching Surface • Thermostatic Control • Shrinkage Control • Automatic Timer • Adjustable tension on cover.

Floor Space 31″ x 28″ • Working Height 38″ • Net Weight 115 lbs. • Shipping Weight 230 lbs.
When ordering, specify Voltage, Current, Cycles and phases.

PRICE—f.o.b. Lynnfield, Mass.
115 volt or 230 volt, single or three phase.

With Timer.....$475.00
Without Timer..... 440.00
DC—$25.00 Extra

PRE-SHRINK AND FLAT SCORCHER

FEATURES: Thermostatic Heat Control • Pre-Shrink attachment • Full Page Scorching Surface • Direct Heat Optional • Scorching Timer • Pre-Shrink Timer.

Floor Space 31″ x 28″ • Working Height 31″ • Shipping Weight 250 lbs. • Net Weight 160 lbs.
Specify Voltage, Current, Cycles and Phases.

PRICE—f.o.b. Lynnfield, Mass.

Model FC, without timer AC.....$250.00
Model FS, with one timer AC..... 275.00
Model FSP, with two timers, AC..... 300.00
DC—$25.00 extra

AMERICAN PUBLISHERS SUPPLY, INC.
P. O. BOX 421 **LYNNFIELD, MASS.**

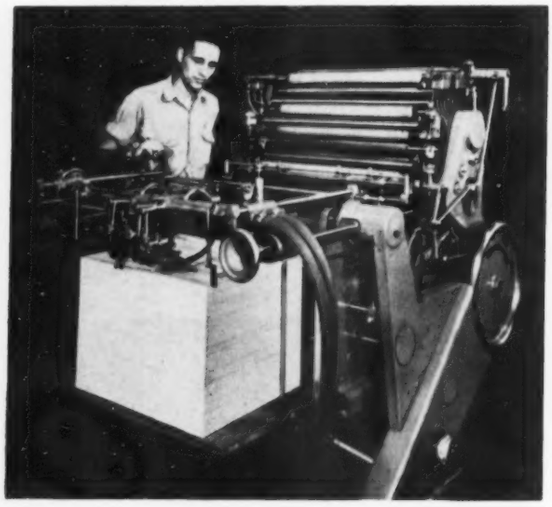
Equipment & Supplies

(Continued from Page 6)

type fountain hand lever designed for adjustment for tint and solid inking. ATF also states that all main thrust bearings are provided with ball bearings. Helical gears of the press are of hardened steel. It is claimed the impression cylinder can be adjusted without use of tools while the press is in operation. The open segment of each cylinder is fitted with weights to counterbalance the heavier plate or blanket area.

An accessible mechanism governs the water feed and the tension between dampening rollers and plate for maintenance of correct relation between water and ink distribution. Public showing of the Chief 24 press will be held at ATF branches as follows: St. Louis, January 12; Cleveland, February 2; San Francisco, February 23; and Los Angeles, March 2.

Additional details may be obtained by mentioning PEE No. 500.



ATF has announced that its Chief 24 sheet fed offset press is now designed to accommodate a 17½ in. by 24½ in. sheet. Press speed is 6000 i.p.h.

Deep Etch Booklet

AN illustrated instruction manual on deep-etch platemaking titled *Better Deep Etch Plates* is available from Harris-Seybold Co. Contents of the booklet include step-by-step explanations of the techniques used in making deep-etch plates. Illustrations and text are used to describe each platemaking operation, and cross-sectional drawings provide a graphic summary of the process. The booklet measures 8½ in. by 11 in. and is printed in two colors. Copies may be obtained by mentioning PEE No. 518 in your request.

Plate Saw Improvements

IMPROVEMENTS in the 24 in. and 15 in. models of the Rouse Plate Saw have been announced by H. B. Rouse & Co. The saw is designed for cutting copper, zinc, magnesium or plastic plates, mounted either on wood, plastic or type metal base. Cuts may be made to picas, points, quarterpoints or inches.

A longer sliding gauge and improved deadlock which locks the sliding gauge against the main gauge bar has been added to the machine. According to the sponsor, this feature provides right angle support for long narrow plates, assuring accuracy of the cut.

Another improvement is an extended main gauge bar which supports plates on

(Continued on Page 16)

At Last!
A
LOW-COST
MOTOR-DRIVEN
CAMERA ARC LAMP

Strong

Fully Automatic High Intensity

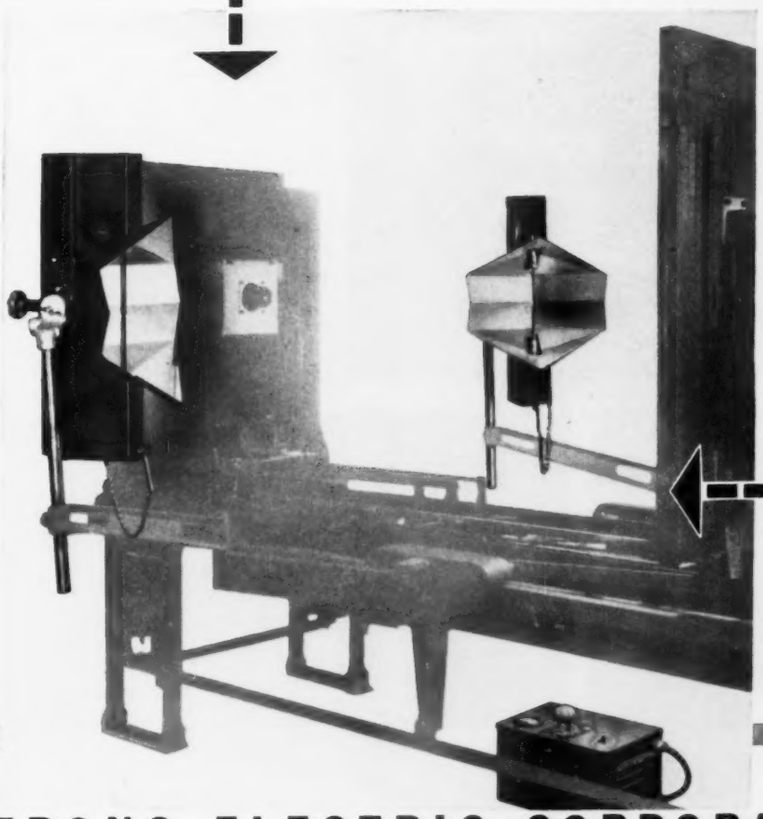
GRAFARC
CHALLENGER

A vertical trim lamp burning two high intensity National Photo No. 98 carbons at 75 amperes and 23 volts at the arc. The arc current controls the carbon feed so that the illumination and color temperature are constant. Uniform illumination is provided on work of any size, with extreme steadiness of light volume. An optically corrected metal reflector provides uniform light distribution over the entire copy board.

The power transformer is of the isolated secondary type, providing complete protection from shock to the operator. The Strong Grafarc time-proven method of compensation for line voltage variations has been incorporated. This system makes use of an indicating meter and a dial-type, tap-changing switch.

Light in weight, the Challenger is readily mounted on the lamp support arms of any camera. Adapters are available to fit all makes of cameras. The Challenger can also be used as a printing lamp.

There are Strong Grafarc lamps designed for all photo-mechanical processes—printing lamps, camera lamps, photo-composing lamps and overhead printing lamps.



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Please send free literature and prices on the new Strong Challenger Camera Arc Lamp.

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"Never missed a deadline because of late pictures"

"We mount SCAN-A-GRAVINGS right on the stereo and print direct," says Plymouth (Ind.) Pilot-News Mechanical Superintendent George Towle.

Ever since the *Pilot-News* got a Scan-a-graver they've never missed a press deadline because of pictures being late. Instead of waiting for cuts, the compositor inserts a block the right size and height in the form, the mat is rolled and the stereo cast and locked on the press. When the Scan-a-graving with its double-backed tape reaches the press room, the pressman merely presses it in place and the run is started.

"There's nothing like printing Scan-a-gravings direct," Mr. Towle says. "Anyone can easily learn how to handle them and after that you have no problems at all. We think they're fine."

With only minutes to go before deadline, *Pilot-News* pressman Lewis Wooley, under Mr. Towle's direction, places the last Scan-a-graving for the day's edition on the stereo which has already been mounted on the press.

Pilot-News Photographer-Reporter Charles Frankel catches picture of suspected criminal caught just after 1 p.m. by Plymouth Policeman Bill Watson. The picture was developed, printed, and engraved well in advance of 2 o'clock deadline.

Doubling as stereotyper and Scan-a-graver operator, C. B. Menser says the Scan-a-graver "is the answer to a mechanical man's dream for making halftones. Learning to operate it was easy, and now it seems practically automatic."

Big test came last July when a 140-page centennial edition was produced with 539 Scan-a-gravings totaling 6,000 square inches. Stereos could be cast well ahead with pictures missing and Scan-a-gravings pressed on at press time.

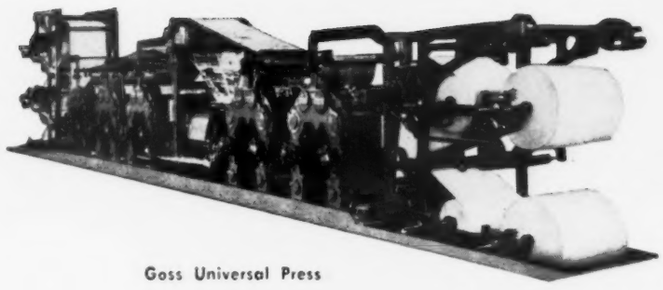
• ***Want to know more about the Scan-a-graver?*** *Full information about its advantages and how easily it will fit into your production schedule is available.* Write today to Fairchild Camera and Instrument Corporation, 88-06 Van Wyck Boulevard, Jamaica 1, New York, Department 100-34 1.

FAIRCHILD

SCAN-A-GRAVER

Goss Headliner Press

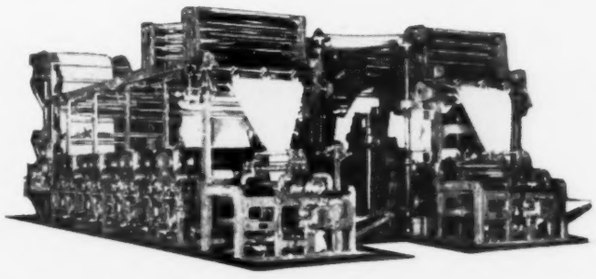
EVERY GOSS PRESS IS A "COLOR" PRESS



Goss Universal Press

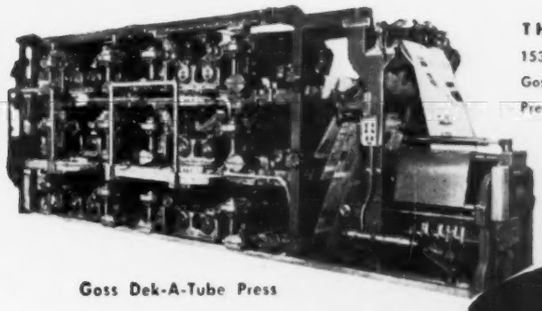
The phenomenal growth of color comes as no surprise to Goss engineers who pre-engineered all their presses for quality color work at all press speeds.

Specimens of sparkling color—R.O.P. ads, supplements, feature pages, cartoons—prove beyond a doubt that Goss users from coast to coast are getting amazing results. These specimens are from color runs on all types of Goss presses—Headliners, Universals, tubulars—and they make a spectacular showing.



Goss Unitubular Press

The Goss tradition for color quality is apparent throughout the entire line of newspaper presses, including multi-color and rotogravure—as well as magazine presses.



Goss Dek-A-Tube Press

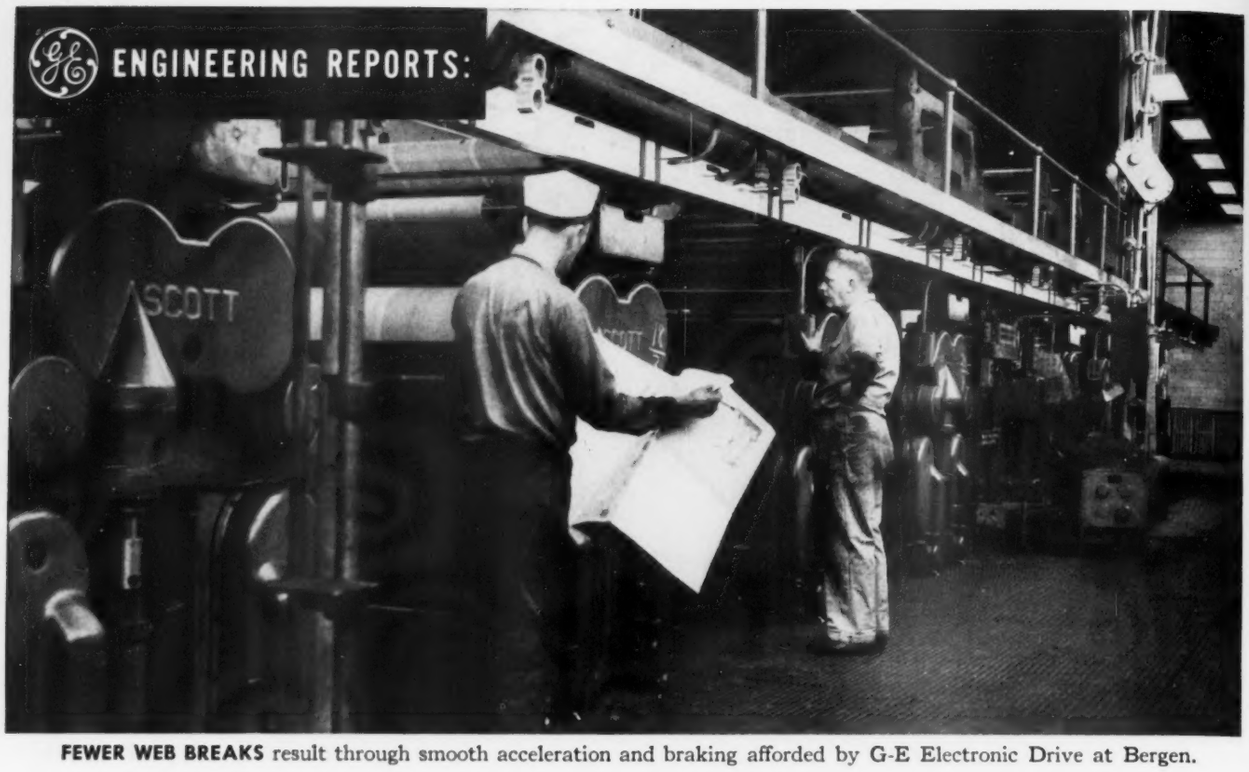
THE GOSS PRINTING PRESS COMPANY

1535 S. Paulina St., Chicago 8, Ill.

Goss Printing Press Co. Ltd.,

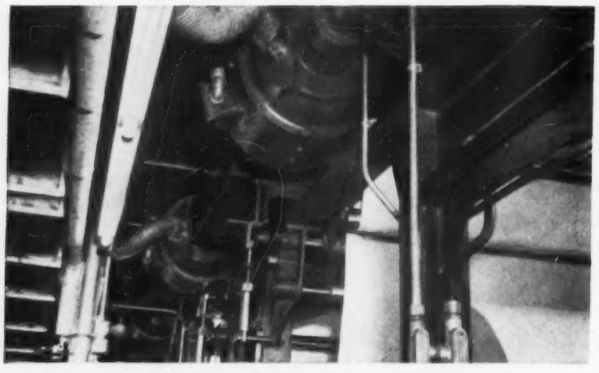
Preston, England

it's GOSS

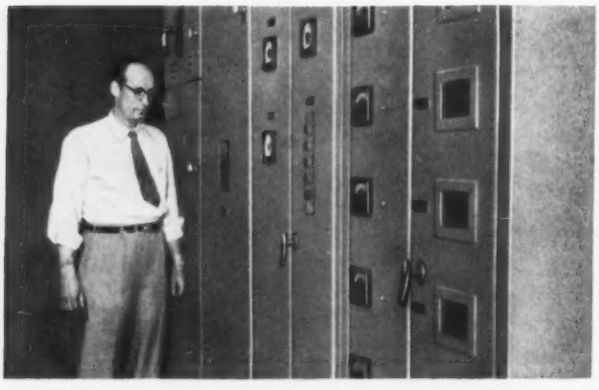


FEWER WEB BREAKS result through smooth acceleration and braking afforded by G-E Electronic Drive at Bergen.

Bergen Evening Record cuts costs



POWER COSTS REDUCED through inherent high efficiency of G-E electronic drive over the entire operating range; also, high power factor substantially lowers kva demand charges.



LESS DOWNTIME occurs because G-E drive eliminates threading motors, drive gears, clutches, mechanical brakes; simplified control has long-life tubes, contains no contactors.

G-E electronic drive reduces power costs, downtime and maintenance

Mr. C. T. Shoemaker, Mechanical Superintendent of the *Bergen Evening Record,* Hackensack, N. J., says, "Our G-E Electronic Press Drive is the most satisfactory and reliable drive I have seen.We get a smooth jog for plating-up and a fast smooth acceleration from threading to full speed that really reduces web breaks. Our pressmen like it, and the simplified control panels have eliminated many of our maintenance problems."

Power costs are reduced, too. Because of the inherent high efficiency of the drive over the entire operating range, and high power factor which reduces kva demand charges, the Evening Record realizes substantial long range savings even while operating their new Scott "Extra high-speed" 8-unit, 2-folder press at 50,000-pph.

For more detailed information on how an electronic press drive can help lower your operating costs, contact your G-E printing industry specialist at the nearest G-E Apparatus Sales Office. He can apply to your specific problem experience gained through close cooperation with other newspapers and your press manufacturer. Meanwhile, write for bulletin GEA-5523. General Electric Co., Schenectady, N. Y. 653-24

Engineered Electrical Systems for Newspaper Plants

GENERAL ELECTRIC

FOR COMPOSING ROOM $AVING$

LOOK into the advantages of
MORRISON *Saw Trimmer and Allied Machines*

MORRISON PLATE BEVELER

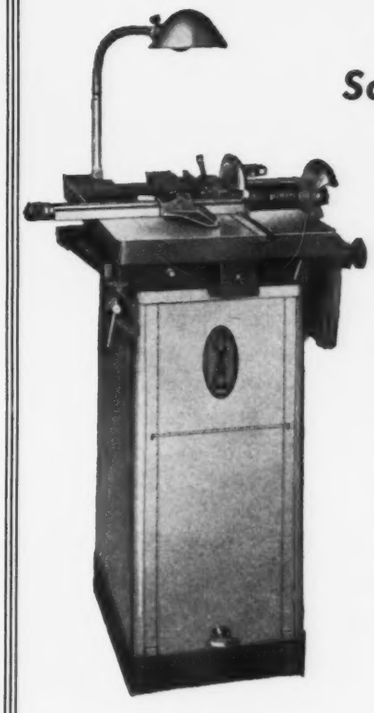
Puts a perfect, burr-free shoulder or bevel on all plates. Cutters work from edge of plate, not the top. You get a smooth die-straight cut every time.

MORRISON SLUG STRIPPER

"Proves itself to the men, within 24 hours." Makes it easy to strip the face of any slug or type character to the exact thickness needed for base heights.

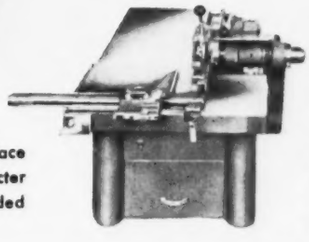
MORRISON

Model 3-A Saw Trimmer



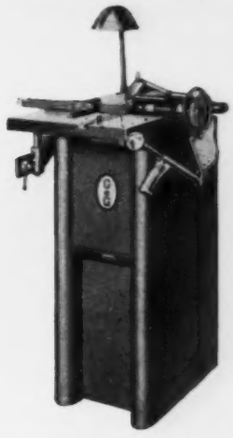
Today's more versatile saw, Table, 30″ x 18″. DeLuxe equipment includes: 73-Pica gauge and workholder. 135-Pica extension gauge, miter and lineup gauge, right and left-hand miter vise, saw grinder with dished emery wheel, trimmer grinder, universal saw blade assembly with head and trimmers. No 20 waste receptacle, adjustable lighting fixture, motor and pulley.

MORRISON MODEL "45" SPECIAL



A low-cost saw trimmer that embodies most of the features of the higher priced Model "45" and Model 3-A. "Behind the gauge" work clamp is standard, conventional "ahead of the gauge" clamp is optional equipment. Also available in a cabinet model.

MORRISON MODEL 45 SAW TRIMMER



With pistol grip saw blade attachment. Features "Trigger Speed" saw adjustment.

MORRISON ROUTER AND TYPE HIGH PLANER

Saves time in making corrections and changes, saves make ready time by having all cuts precision height. Has exclusive Morrison micrometer height gauge. Allows routing to center of a 34″ cut.

Other Morrison Equipment includes: Strip material cabinets, waste receptacles, Universal saw blades, router bits, and jig saw blades

Symbol of Operating Economy

THE MORRISON COMPANY MILWAUKEE WIS.

THE *Morrison* COMPANY

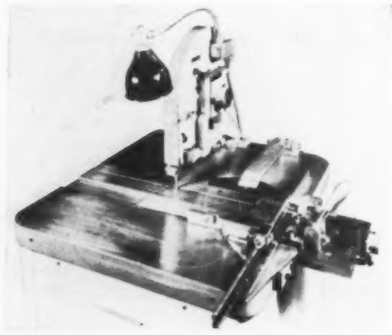
PRECISION MACHINES FOR THE GRAPHIC ARTS INDUSTRY

125 W. Melvina Street, Milwaukee 12, Wisconsin

Equipment & Supplies

(Continued from Page 10)

either side of the cutting blade for cleaner cuts. The other feature reported by Rouse consists of brass guides with hardened steel inserts which hold the skip tooth saw



View of the working surface of the Rouse Plate Saw. The sponsor, H. B. Rouse & Co., reports several improvements for making cuts on all types of printing plates.

blade at the sides of the cutting spot for accuracy and control of the cutting area. Ball bearings hold the blade at the proper spot below and above the cut.

It is claimed that for key letter or number changes, signatures, etc., cuts as small as 1 pica square may be made. A complete description of the Rouse saw appeared in the December 1951 issue of *Printing Equipment Engineer*. For further details, please mention PEE No. 515 in your request.

Many of our production executive readers will respond to your Position Wanted Ad in the Classified Section of *Printing Equipment Engineer*. Rates on p. 75.

The Aniline Story

RELATIVELY few people, aside from chemists, have ever seen a sample of aniline. Fewer still realize how important a part it has in everyone's daily life. The fascinating story of this chemical is most interestingly told in a booklet *The Aniline Story* just issued by the National Aniline Div. of Allied Chemical and Dye Corp., 40 Rector St., New York 6, N. Y. In this brochure is given the history of what was man's first commercial synthetic organic chemical with description of its many present uses and future possibilities. Initially responsible for unlocking the doors to the synthetic dye industry, aniline has also become an important raw material in the manufacture of photographic film, blueprint paper, printing inks, carbon papers and many other products. Present day American production is the equivalent of nearly a pound per annum for every man, woman and child in the U.S. A copy of this booklet may be obtained by writing direct to National Aniline Div., Allied Chemical and Dye Corp. at the address given above.

Conditioner for Drying or Moistening Air

NIAGARA Blower Co. has announced an improved apparatus for the drying or moistening of atmospheric air by its Liquid Contact Method. It is claimed that air is treated to fix relative humidity and temperature independently, as separate functions, to obtain closer control of results. Applications include the establishment of dry atmospheres for protection, processing or drying of moisture sensitive materials, testing materials, and conditioning of air for human welfare.

Filtered fresh air enters a spray chamber (accompanying flow diagram) providing contact between air and the spray liquid. The spray either adds moisture or removes it by absorption or by condensation. The condition of the spray liquid (its temperature or absorbent concentration) determines the moisture content of the air leaving the chamber. The final temperature is fixed as a separate function, either within the apparatus or external to it, thus giving control of room

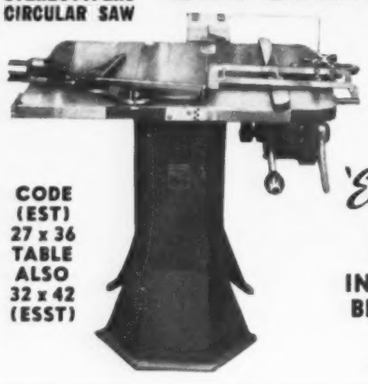
Dispenser Strips Off Scotch Tape Liner—Minnesota Mining and Mfg. Co. has introduced a dispenser equipped with a roller which strips off the protective liner from Scotch double-coated tape. Designated Scotch double-coated tape dispenser Model M-71, it will handle either the No. 666 transparent cellophane or No. 400 paper backed double-coated tape. Dual tape-holding drums are provided for handling two kinds of tape—one double-coated and one regular roll—simultaneously. Sponsor states that tape from each roll can be dispensed separately.

The gray dispenser weighs 9½ lbs. and measures 9 in. by 4 in. by 5 in. high. It accommodates 36 yd. rolls of double-coated tape in widths from ¼ in. to 2 in. Further information may be obtained by mentioning PEE No. 502 in your request to *Printing Equipment Engineer*.

SPEED PRODUCTION with RICHARDS

PLATE WORKING MACHINES
SAWS — ROUTERS
MORTISERS

ELECTROMATIC STEREOTYPERS CIRCULAR SAW



CODE (EST) 27 x 36 TABLE ALSO 32 x 42 (ESST)

SAVE PRESS TIME

(EMM) 'Electromatic' MORTISING MACHINES IN PEDESTAL OR BENCH MODELS

Ask For Circulars

Flat and Curved Shell or Typhi =

Curved and Tubular Plate Enclosed Routers

(PMRS) RADIAL ROUTER — Straightline And Fine Detail Routing

ROUT OUT SMASHES

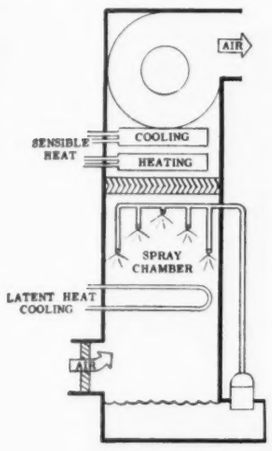
PATCH

SAVE PRESS TIME

J. A. RICHARDS COMPANY, Kalamazoo 60F, Michigan

conditions by means of thermostats.

The spray liquid used for removing moisture may be either refrigerated water or the company's Hygrol, a stable organic absorbent liquid (not a salt) which is



FLOW DIAGRAM

Flow diagram of the Niagara Liquid Contact Method for the drying or moistening of atmospheric air.

automatically held at the proper concentration. When Hygrol is used the latent heat of condensation of the moisture removed may often be absorbed by evaporatively cooled water. The dew point of the air is fixed and final conditions are held automatically constant or varied by either adding or removing moisture in response to changing the instrument setting.

The Conditioner performing this operration is available in nine sizes with a capacity range from 1000 to 24,000 cu. ft. of air delivery per min. If more information is desired, please refer to PEE No. 505 in your request.

Mask Aligning Frames

THE Kodak Register Printing Frame, a device designed to simplify aligning masks in color separation work, has been announced by the Eastman Kodak Co. The unit will accept up to 11 in. by 14 in. transparencies and can be used to obtain close register with either film or glass masks in complete darkness, if necessary. In use, matrix film punched on the Kodak Matrix Film Punch is registered with the transparency by means of two register pins located at the edge of the frame. Register with glass plates is accomplished with three metal contact pins located inside frame. Please refer to PEE No. 503 when requesting further information.

Hamilton Press Bulletins

A SERIES of six bulletins describing Hamilton rotary web presses, collators and magnetic core-type rewinders have been prepared with a special cover by Hamilton Tool Co. Each bulletin includes illustrations of the equipment described. As stated in one of the bulletins, Hamilton rotary web business form presses are designed for rubber plate, electrotype or offset printing, or for any combination of these processes, in from one to four main colors. Hamilton collators are designed with attachments to collate carbon interleaved, zigzag folded forms, either from folded packs or rolled up copy webs. If copies of these bulletings are desired, please mention PEE No. 516 in your request.

Carton Pack for Paper

CARTON packs for all grades of Kimberly-Clark coated and enamel book papers have been announced as available by Kimberly-Clark Corp. Each carton, weighing about 150 lbs., contains a fixed number of sheets or reams, depending on sheet size and basis weight. All basis weights of Kimberly-Clark Hifect Enamel, Lithofect Offset Enamel, Trufect and Multifect coated papers are available in the carton pack. Stocking sheet sizes for cartons are 22½ in. by 35 in., 25 in. by 38 in. and 35 in. by 45 in. The carton with waterproof inside wrap is designed to withstand the strain caused by tendency of coated paper to shift and slide in handling. Please mention PEE No. 512 when requesting further details.

(*Continued on Page 71*)

A Pressman's Press

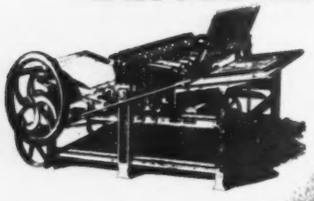
Four MILLER E.B.CO's **Maran Typographers and Printers, Baltimore, Md.**

Viewed from any angle, the Miller E.B.CO 22 x 34 Offset Press presents a clean, sparkling, uncluttered appearance to delight the plant owner and operator alike. Planned along lines demanded by men who operate it, this is a pressman's press. Controls and adjustments used during normal operation are conveniently located outside the press frame, away from moving parts, on the operator's side, ready-at-hand, to give the pressman accurate results, safety, and peace-of-mind. May we send you literature?

Miller Printing Machinery Co.

1103 Reedsdale Street **Pittsburgh, Pa.**

FROM HAND FEEDING *to Stream Feeding*



with an

ELLESS

Stream SuperFeeder

"We sincerely feel that this feeder has simplified paper feeding to a point where few printers of any volume can afford to hand feed."
The Rumford Press
Concord, N. H.

"Since installing the feeder . . . we have been able to eliminate one shift on this press . . ."
The Bloom Printing Co.
Chicago, Illinois

WHAT USERS ARE SAYING

". . . Our Production per day has increased enough to reduce our labor cost . . . It has proved a very satisfactory addition to our plant."
The Hines Printing Co.
Toledo, Ohio

"We find they (the Elless Stream SuperFeeders) are remarkably simple and easy to work on. Set-up time is unusually fast."
Prospect Press, Inc.
New York, N. Y.

SPECIAL NOTICE: Be sure you request a "Press Production Survey"—the new exclusive Super Speed service.

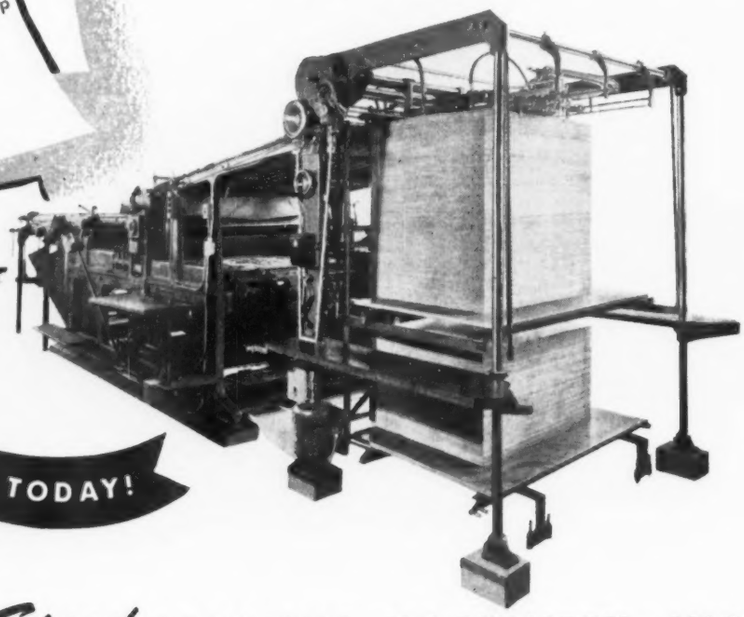
GET FULL DETAILS TODAY!

THE MOVE IS TO MORE PRODUCTION

Increased production at reduced production costs—this is what you get when you add an Elless Stream SuperFeeder to your flat bed MIEHLE or BABCOCK press. This is a fact proven by results obtained in plants around the world.

Heavy demands for more production, plus ever-increasing production costs, will make the addition of an Elless Stream SuperFeeder the best investment you ever made.

Write today for full particulars on this efficient automatic Stream Feeder.



Super Speed **PRINTING MACHINERY • INC.**

PHONE: TOWER 1-1814 • 1716 EAST 27th STREET • CLEVELAND 14, OHIO

CHEMCO EQUIPMENT... best for photoengraving!

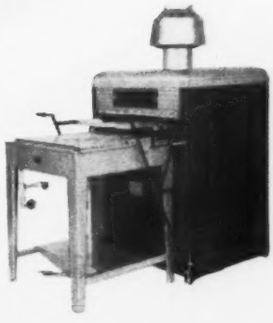
Give your photoengraving plant the tremendous advantages of best production, easiest maintenance and year-after-year economy! You can do it with these outstanding Chemco products.

CHEMCO MODEL F ROLL FILM CAMERA—Used in the daily production of about 47,000,000 copies of the 53,000,000 newspapers printed each day. Outside controls, roll film cut off, side arm control and dozens of other conveniences assure precision negatives at highest production rates.

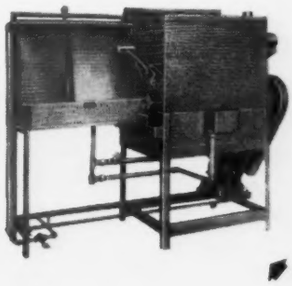
CHEMCO MODEL 910 TEMPERATURE CONTROLLED DARKROOM SINK—Just set the dial for automatic temperature control of processing solutions! MODEL 911—For use where hot water is available and cold water supply is always lower than temperature desired for processing.

CHEMCO MODEL 1300 AUTOMATIC GAS-ELECTRIC PLATE WHIRLER—Produces uniformly sensitized plates with all types of enamel in about a two minute cycle. Set dial for speed, press the starter button . . . no other attention needed during the cycle!

CHEMCO MODEL 3000 COLD GRID PRINTER—Four minutes average printing time . . . in half the space needed for frame and arc set-ups. No glare, fumes, smoke, and no excessive heat. Operates on one-fifth of the electric power used by the average printing arc!



CHEMCO MODEL 310 BURNING-IN OVEN AND COOLER—Perfect heat control, easy operation and rapid, even burning-in . . . plus instant cooling! Fourteen ribbon type burners give even heat flow over entire plate area. MODEL 101—Diaphragm type with foot lever. MODEL 102—Flow type using running water, with foot valve.



CHEMCO MODEL 901 LEVER CONTROLLED ETCHER—Safe fume-free, rapid production with eye-level operation. This is the finest etcher investment you can make!

WRITE FOR ALL THE FACTS...AND USE CHEMCO'S ADVISORY AND PLANNING SERVICES WITHOUT OBLIGATION!

CHEMCO PHOTOPRODUCTS COMPANY, INC.

GLEN COVE, NEW YORK

BRANCHES:

NEW YORK	235 Fourth Avenue, New York 3, N. Y.
CHICAGO	442 N. Wells Street, Chicago 10, Ill.
DETROIT	1414 Dime Building, Detroit 26, Mich.
NEW ORLEANS	408 Camp Street, New Orleans 12, La.
BOSTON	218 Milk Street, Boston 9, Mass.
ATLANTA	99 Cone Street, N.W., Atlanta 3, Ga.
DALLAS	2024 Main Street, Dallas 1, Texas

EXCLUSIVE AGENTS IN CANADA: W. E. Booth Company, Ltd., Toronto, Montreal, Quebec

WEST COAST AGENTS: California Ink Company, Inc., San Francisco, Los Angeles, Portland, Salt Lake City, Seattle

Uncle Mat Says...

6 SERVICE BRANCHES
31 FIELD CREWS TO
SERVE YOU DAY AND NIGHT
COAST-TO-COAST AND CANADA

MATRIX

CONTRAST SERVICE

prevents type slips

like this . .

he had the privilege also of viewing a number of rare Egyptian Mummies M

IT HAS taken 27 years experience to give you the type of dependable service rendered by Matrix. Here, you gain every advantage of modern equipment, intelligent service crews, plus a proven, troublefree process.

● Black and White or Colors are applied to all your matrices, old and new, at a nominal yearly service charge in our plants and by trained service crews from coast-to-coast and Canada. Our nearest service branch will give you "reasons why" you should use the time-tested Matrix Method on your matrices.
Do it today!

MATRIX CONTRAST SERVICE

MATRIX CONTRAST CORPORATION
154 West 14th Street, New York 11, N. Y.
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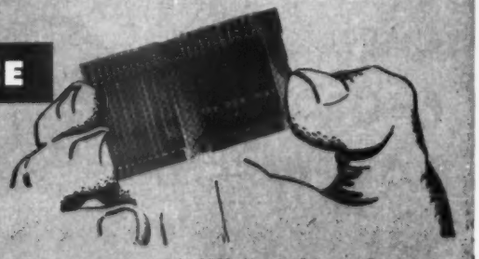

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- *Scheduling*
- *Quality Control*
- *Printing Preparation*
- *Engineering*
- *Trolley Conveyor System*
- *Operation Methods*

PRINTING
EQUIPMENT
Engineer
January 1953

Large Edition Magazine Printing

As Practiced in the Plant of Meredith Pub. Co., Des Moines

By MacD. SINCLAIR

THIS story is about the Meredith Publishing Co., Des Moines, Ia., publishers of *Better Homes and Gardens* and *Successful Farming*, and a variety of 12 loose-leaf and hard bound books. It is written primarily from a manufacturing standpoint. After having visited the Meredith plant, we'd like to tell about management, editorial, advertising, circulation, self-promotion and other activities. But having gone into the plant to learn something about manufacturing operations, we'll just have to pass up these fascinating subjects. Our immediate purpose is to discuss some of the manufacturing operations and the controls which are applied in producing quantities of magazines by the letterpress process. In this story it is shown that certain manufacturing controls are necessary in producing a quality product. It is also demonstrated that the larger the business the greater the necessity for exercising controls to keep the quality of reproduction as well as production at highest peak at all times. This is understandable since in a large plant there is a multiplicity of the human element involved. In a way, the small printing plant must also exercise similar controls, the only difference between the small and large plant is in the volume of work going through the plant.

Two of the Principal Management Executives of Meredith Publishing Co.

FRED BOHEN
President

E. T. MEREDITH, jr.
Vice President and General Manager

Engineering and People Can Be Mixed

Claude V. McBroom is Director of Manufacturing for Meredith. With the cooperation of Assistant Director Jerry Stouffer and other important executives, his is the task of keeping Industrial Relations, Personnel, Production, Engineering, Quality Control, Circulation (Clerical), Purchasing and Traffic moving along harmoniously. There are in excess of 1800 people in the employ of the company. Complex technical processes are used in producing over 5,000,000 magazines each month, together with various printed by-products. At first thought, it would seem that like oil and water, people and engineering aren't miscible. After talking briefly to McBroom you acquire a new enthusiasm about people. People are intelligent—machines are not. People do things for you. Complicated machines in themselves cannot function except under the direction and with the assistance of people. Therefore, people are important to Meredith. People can be trained to accomplish quality objectives, when encouraged to take an interest in their work. In turn, the company (even though it be inanimate in itself) can impart enthusiasm to the workers through its supervising executives. McBroom's philosophy is as simple as that. This seems to permeate the entire organization. By and large, enthusiasm is evident in every mechanical department.

Scheduling Dept.

In addition to preparing schedules four months in advance for publications, the Scheduling department must be able to revise them up or down with respect to number of pages according to revisions in copy volume coming into the editorial and advertising departments from time to time before publication dates. Scheduling Mgr. Robert Jolley must also be able to answer any question at any time of the day respecting editorial or advertising copy for any issue of the publications which have already been scheduled. For instance, in the case of an editorial, it might be desirable to know whether or

Executives Concerned with Some of the Manufacturing Operations at Meredith Publishing Co., Des Moines, Ia.

CLAUDE McBROOM
Director of Manufacturing

JERRY STOUFFER
Asst. to Director of Mfg. and Director Production and Engineering

PERRY ALBAUGH
Pressroom Supt.

AL COLE
Asst. Press Supt

ROBERT JOLLEY
Scheduling Manager

ROBERT SPRY
Manager of Engineering

VERNER MAUK
Superintendent of Printing Preparation

GEORGE REGAN
Composing Room Foreman

FLOYD GREEN
Inspection and Electrotyping Manager

AL GRABOWSKI
Photoengraving Mgr.

WM. McKOWEN
Manager of Purchasing and Traffic

RAY MAIN
Traffic Mgr.

WILBUR FOWLER
Supt. Plant Engineering

RUSSELL PARRISH
Mgr. Mechanical Research

TOM IRWIN
Chief Chemist and Mgr. of Materials Testing

AL JOHANN
Industrial Relations and Machine Bindery and Mailing Supt.

GLEASON STARR
Bindery Manager

WALTER MITCHELL
Mailing Room Mgr.

Some Meredith Notes of Interest

It is stated that Meredith is the largest complete publishing and printing plant under one roof in the United States.

Meredith's magazine pressroom turns out 600 million impressions per year. Over 1800 people are employed.

To indicate the liberal personnel attitude of management executives, smoking is permitted except in hazardous areas in the plant.

Paper consumption is over 90 million lbs. annually.

At an early date it is expected that installation of two new Hoe 48 page, 5 color presses with Offen hot-air ink drying system, will have been completed.

An extensive plant modernization program has been in progress for two years.

The plant is to be protected by a sprinkler system now being installed. Water is stored in a 100 thousand gal. tank up in the air 110 ft. from base to the top of the tank.

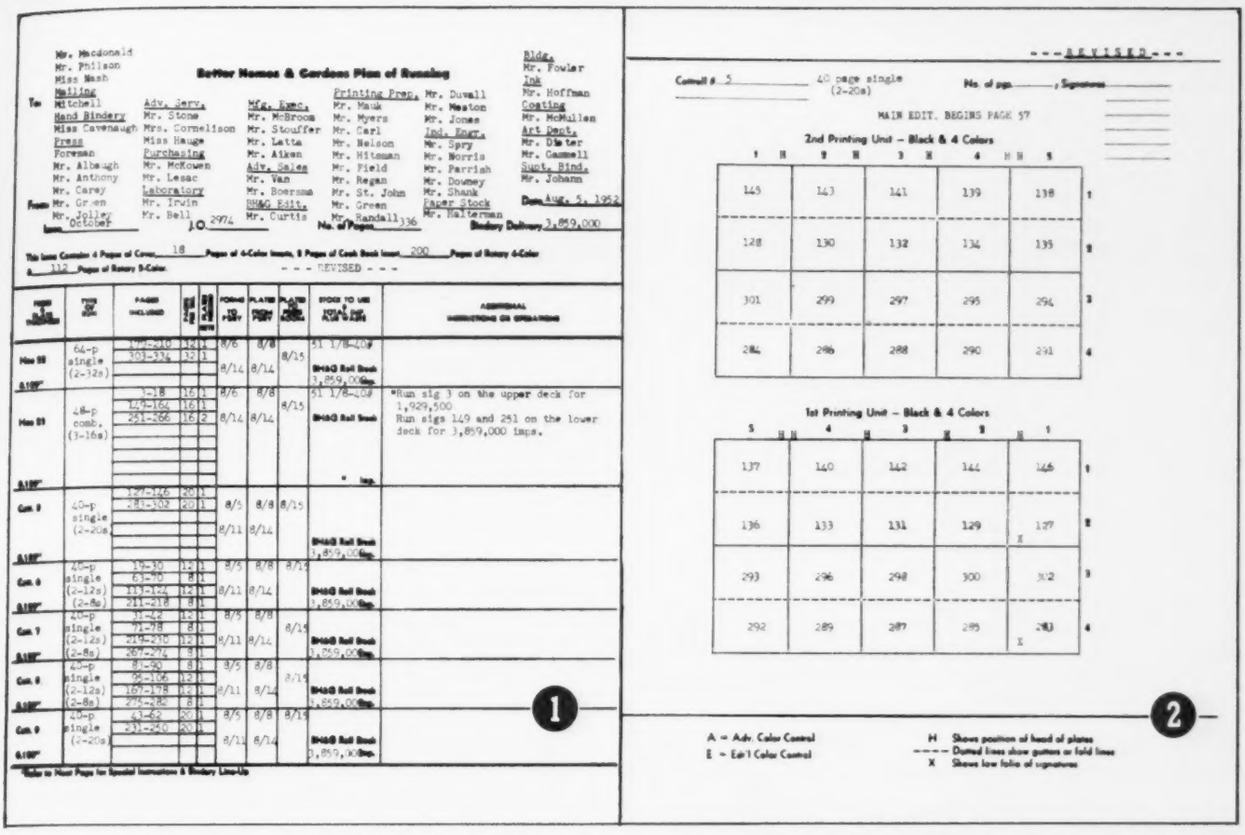
Natural gas service on the presses comes from a 20 in. main at 21 lbs. intermediate pressure.

Heating and processing steam is by natural gas and there is oil standby equipment in case of necessity.

All 15 lb. CO_2 fire extinguishers are refilled in the plant.

Four automatic electric elevators have been installed in the last four years.

For future expansion purposes Meredith owns 20 A. of land near its present site.



Mr. Macdonald
Mr. Philson
Miss Nash

Better Homes & Gardens Plan of Running

Bldg.
Mr. Fowler
Ink
Mr. Hoffman
Coating
Mr. McMullen
Art Dept.
Mr. Dieter
Supt. Bind.
Mr. Johann

To: Mailing — Mitchell; Hand Bindery — Miss Cavenaugh; Press — Foreman — Mr. Albaugh, Mr. Anthony, Mr. Carey; From: Mr. Green, Mr. Jolley

Adv. Serv. — Mr. Stone; Mrs. Cornelison; Miss Hauge
Purchasing — Mr. McKowen; Mr. Lesac
Laboratory — Mr. Irwin; Mr. Bell

Mfg. Exec. — Mr. McBroom; Mr. Stouffer; Mr. Latta; Mr. Aiken
Adv. Sales — Mr. Van; Mr. Bowrons
BH&G Edit. — Mr. Curtis

Printing Pres. — Mr. Mauk; Mr. Myers; Mr. Nelson; Mr. Hitsman; Mr. Field; Mr. Regan; Mr. St. John; Mr. Green; Mr. Randall
Mr. Duvall; Mr. Maston; Mr. Jones; Ind. Engr. — Mr. Spry; Mr. Norris; Mr. Parrish; Mr. Downey; Mr. Shank; Paper Stock — Mr. Halterman

Issue: October — J.O. 2974 — No. of Pages: 336 — Bindery Delivery: 3,859,000 — Date: Aug. 5, 1952

This Issue Contains 4 Pages of Cover, 18 Pages of 4-Color Inserts, 2 Pages of Cook Book Insert, 200 Pages of Rotary 4-Color & 112 Pages of Rotary 2-Color

- - - REVISED - - -

Press Sequence	Type of Run	Pages Included	Signature	Sets	Form Press	Plate Press	Plates Ordered	Stock to Use	Additional Instructions or Operations
Hoe 58	64-p single (2-32s)	209-240 305-336	32 1 32 1		8/6 8/14	8/8 8/14	8/15	51 17/8-20# BH&G Roll Stock 3,859,000 lbs.	
A 110"									
Hoe 59	48-p comb. (3-16s)	1-18 149-164 251-266	16 1 16 1 16 2		8/6 8/14	8/8 8/14	8/15	51 17/8-20# BH&G Roll Stock • lbs.	*Run sig 3 on the upper deck for 1,929,500 Run sigs 149 and 251 on the lower deck for 3,859,000 imps.
A 110"									
Cot. 5	40-p single (2-20s)	127-146 281-302	20 1 20 1		8/5 8/11	8/8 8/14	8/15	BH&G Roll Stock 3,859,000 lbs.	
A 110"									
Cot. 6	40-p single (2-12s) (2-8s)	19-30 63-90 113-124 211-218	12 1 8 1 12 1 8 1		8/5 8/11	8/8 8/14	8/15	BH&G Roll Stock 3,859,000 lbs.	
A 110"									
Cot. 7	40-p single (2-12s) (2-8s)	31-42 71-78 219-230 269-276	12 1 8 1 12 1 8 1		8/5 8/11	8/8 8/14	8/15	BH&G Roll Stock 3,859,000 lbs.	
A 110"									
Cot. 8	40-p single (2-12s) (2-8s)	81-90 95-106 167-178 275-282	8 1 12 1 12 1 8 1		8/5 8/11	8/8 8/14	8/15	BH&G Roll Stock 3,859,000 lbs.	
A 110"									
Cot. 9	40-p single (2-20s)	43-62 231-250	20 1 20 1		8/5 8/11	8/8 8/14	8/15	BH&G Roll Stock 3,859,000 lbs.	
8 110"									

*Refer to Next Page for Special Instructions & Bindery Line-Up

1

- - - REVISED - - -

Consult # 5 — 40 page single (2-20s) — No. of pgs. ——— ; Signatures ———

MAIN EDIT. BEGINS PAGE 57

2nd Printing Unit — Black & 4 Colors

1 H	2 H	3 H	4 H H	5	
145	143	141	139	138	1
128	130	132	134	135	2
301	299	297	295	294	3
284	286	288	290	291	4

1st Printing Unit — Black & 4 Colors

5 H H	4 H	3 H	2 H	1 H	
137	140	142	144	146	1
136	133	131	129	127 X	2
293	296	298	300	302	3
292	289	287	285	283 X	4

A = Adv. Color Control
E = Edit Color Control

H Shows position of head of plates
– – – – Dotted lines show gutters or fold lines
X Shows low folio of signatures

2

Fig. 1.—Plan of Running Schedule for the October 1952 issue of *Better Homes and Gardens* published by Meredith Publishing Co., Des Moines, Ia. This is Page 1 of the Plan of Running. The Plan consists of 8 pages; Page 2 contains the Bindery Line-up for this issue; the other 6 pages contain diagrams showing position of each plate on the press cylinder. Original size of this Plan of Running is 8½ in. by 11 in. Fifty copies are printed on office duplicating machines.

It can be seen that a complex operation is simplified and at the same time everybody concerned with production of an issue is kept fully informed through receiving a complete copy of the 8 page Plan of Running. It is explained in the accompanying article that the Scheduling department works four months ahead on issues of *Better Homes and Gardens* and *Successful Farming*. At first, the tentative schedule really is just a *rough* expressed in columns. As time passes and the editorial and advertising departments are able to determine the proportionate space required for a certain issue, the Scheduling department in turn formulates a more nearly definite plan. The plan is revised as the closing date draws near.

The final book size is set on the first of the second month preceding date of issue. The final advertising closing date is the fifth of the same month. As is the case of the October issue this book size was changed on the fifth, however, this rarely happens. The Scheduling department knows how many working days and hours are available between a given date and the commencement of actually printing the magazine, the number of presses and their capacities. This is all governed by the total number of pages in an issue and the number of pages to be printed in one or more colors.

In this Fig. 1, is shown page 1 of an 8 page Plan of Running for the October 1952 issue of *Better Homes and Gardens*. Date on which the Plan was made up was August 5, 1952. Note that the Plan shown here is marked "Revised". Normally this would be marked "Actual" but this is one of the rare occasions when the book size was changed between the first and the fifth of the month.

All executives concerned with supervision of an issue will receive a copy of this Plan of Running as indicated by the names at the top of this page 1.

From this page 1 we are informed that the October issue of *Better Homes and Gardens* will consist of 336 pages; bindery delivery is 3,859,000 copies; the issue consists of 4 pages of cover, 18 pages of 4 color inserts, 2 pages of Cook Book insert, 200 pages of rotary 4 color, and 112 pages of rotary 2 color.

Also indicated are the kinds and number of presses required to print the issue—2 Hoe rotaries and 5 Cottrell rotaries; the type of run is indicated in signatures, pages included in each signature, pages per signature and sets of plates needed. Specific dates for manufacture of plates are given together with delivery dates to the pressroom. Also, the kind of stock is given for each press.

(See Figs. 2 and 3 for miniature reproduction of one of the plate layouts for press cylinder.) See Fig. 4 for Bindery Line-up of this issue.

Note: 6 Claybourns are also needed to run the inserts and Cover as you can see in "press source" column on bindery lineup. Running instructions for these are on separate memos.

Fig. 2.—Press Plate Cylinder Layout Sheet. This is page 3 of the 8 page Plan of Running schedule shown in Fig. 1 for the October 1952 issue of *Better Homes and Gardens*. In all, 6 presses were used in printing the issue. We will not reproduce all of the 6 press charts attached to the schedule because of editorial space limitations. This page plate layout shows positions of the plate on Cottrell Press No. 5, first and second printing units, first side with back-up. As will be seen, there are 5 plates across the cylinder and 4 plates around. These sheets are made up in the Scheduling department from layouts furnished by the pressroom.

not it has been set into type. Or someone in the Advertising department wants to know at what stage of processing the ad is in? Or can the advertiser secure some extra proofs right away? When you consider the hundreds of advertisements being processed in the plant it can be seen that keeping track of all these details is a meticulous operation.

It's rather difficult to explain to those who are not familiar with scheduling operations just how the Scheduling department operates. But we'll give it a try. In a publishing and printing business where many intricate operations are involved it isn't hard to understand that a firm must work a year ahead with respect to its anticipated volume of business. This enables management to anticipate operating, maintenance and repair costs, paper stock and material purchases, and equipment purchases so that budgets can be prepared. The Advertising department enters into the picture when it sizes up the anticipated volume of business and the Scheduling department translates the estimates into terms of production hours through the year. It isn't quite that simple, but in general, that's the principle.

The Scheduling department actually works four months ahead on each of its magazines. It sends to those executives concerned the estimated number of

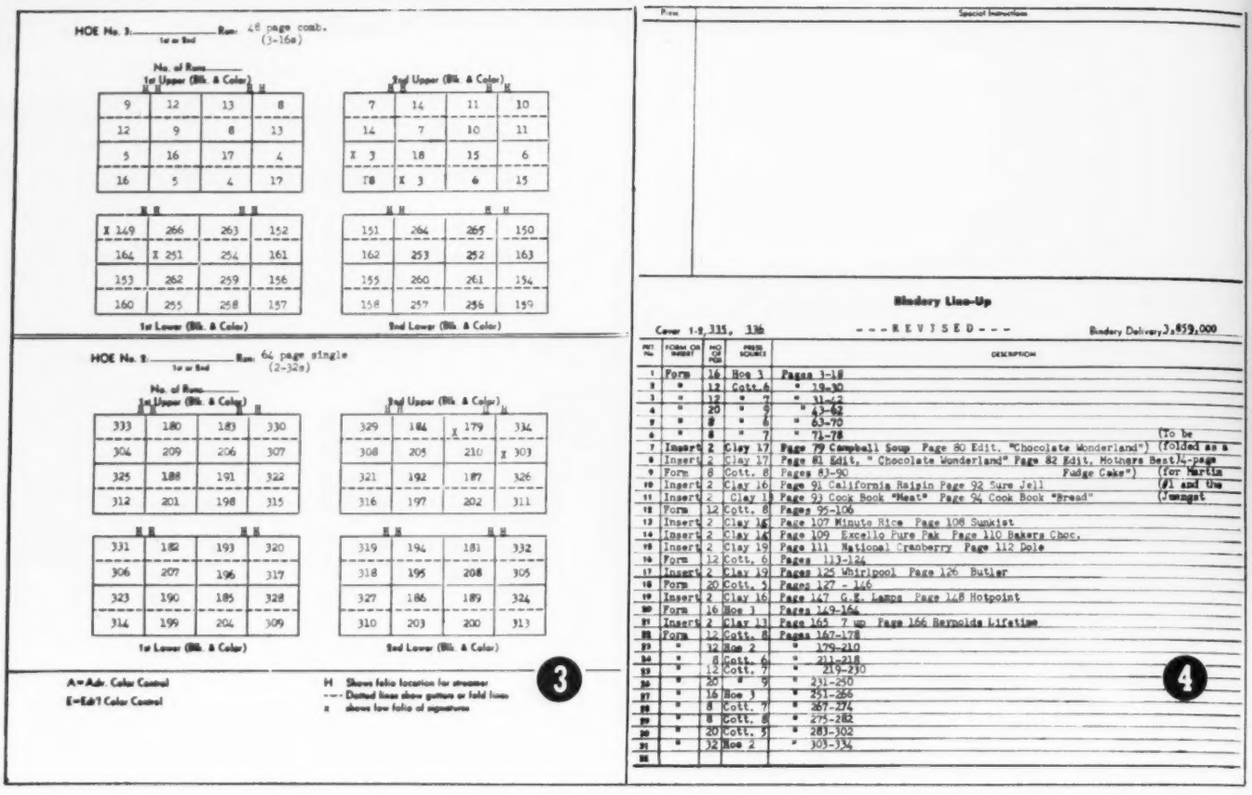

HOE No. 3. 48 page comb. (3-16s)
1st Upper (Blk. & Color)
2nd Upper (Blk. & Color)
1st Lower (Blk. & Color)
2nd Lower (Blk. & Color)
HOE No. 2. 64 page single (2-32s)
1st Upper (Blk. & Color)
2nd Upper (Blk. & Color)
1st Lower (Blk. & Color)
2nd Lower (Blk. & Color)
A=Adv. Color Control
E=Ed'l Color Control
H Shows folio location for streamer
Dotted lines show gutters or fold lines
x shows low folio of signatures
3
Press
Special Instructions
Bindery Line-Up
Cover 1-2, 335, 336
---REVISED---
Bindery Delivery 3,659,000
4

Fig. 3.—Press Plate Cylinder Layout Sheet. This is page 4 of the 8 page Plan of Running schedule shown in Fig. 1 for the October 1952 issue of *Better Homes and Gardens*. This is one of 6 press charts accompanying the Plan sent to all supervisory personnel in the organization.

At the top is shown plating of the press cylinders upper and lower decks of R. Hoe & Co.'s magazine printing press No. 3. The press run is a 48 page combination platted as three 16 page signature will be cut apart on the press folder before being folded.

In the lower section of this reduced diagram is shown plate cylinder layout for upper and lower decks of R. Hoe & Co.'s magazine printing press No. 2. This run consists of a 64 page signature laid out for two 32 page forms which will be cut in two before the web enters the folder attached to the press.

Fig. 4.—This Bindery Line-up is page 2 of the Plan of Running schedule shown in Fig. 1. The forms and the inserts are numbered consecutively, exclusive of the cover (pages 1 and 2 and 335 and 336). The covers are fastened to the gathered and stitched signatures with adhesive on an automatic machine. This Line-up shows the press source from which the signatures will be delivered, together with the actual page numbers. For instance, the first form's pages run from page 3 to 18 inclusive, the reason being that the front cover pages are numbered 1 and 2 respectively.

pages four months previous to publication date. Here is where the coordinating function of Scheduling commences. At this stage of production, all magazine content is stated in columns because the definite amount of advertising is not known. Further, all estimated sizeups are subject to change depending upon the additional advertising which may be received after the estimate has been prepared.

As soon as it receives the preliminary estimate, the Scheduling department prepares production data regarding engraving, composition, platemaking, press runs, bindery and shipping operations. At this time the Art department can proceed with layouts for editorial, double page spreads, bleed layouts, and the like. All ads with few exceptions are received as complete engravings.

As time passes and the publication date of a magazine draws near, the Scheduling department breaks down editorial and advertising copy according to the working days available in the mechanical departments of the plant.

Four color editorial copy and art work is scheduled first. This four color copy is given preference because of the time element involved in producing the plates.

Proofs of all advertising and editorial original plates and manuscript copy are sent to the Scheduling department as completed. This enables Scheduling to record receipt of proofs. A slip attached to manuscript and art copy indicates when the work has been completed.

Two Separate Operations

There really are two separate operations involved in the Scheduling department. The first, as previously described, is the estimate number of columns which will make up a given issue of a magazine. The other is that of making up a production schedule for the actual size of the magazine for a given month.

As has been previously explained, all editorial estimates up to the time of actually making up a dummy for an issue, like the advertising, are by columns. A record of all type composition and cuts has been kept from the time of receipt of type copy and art. The system for recording engraving plate information is the same as for manuscript articles.

A number of controls are in effect in the Meredith plant to keep down authors' alterations. All editorial proofs are read by editorial proofreaders to minimize authors' alterations in the composing room. Actually, in the case of editorial composition, the first made-up page proofs are supposed to receive final OK by the Editorial department. The Art and Editorial departments are supposed to see only the first page proofs. If it is deemed essential to make an alteration after discussion by the parties concerned, the Scheduling department will "bend" if necessary.

Pasting the Dummy

One of the big operations at Meredith is the making up of an issue of a magazine—otherwise known to printing executives as "pasting up the dummy." For this purpose the Editorial and the Advertising department makeup editors go into conference. The dummy pages are exact size of the magazine being made up. We are assured that the proceeding is amiable in every way despite some of the well known cliches one hears about from time to time regarding preferences of either department. It should be mentioned that the people doing the actual pasting up of the pages are highly skilled and produce a creditable facsimile for guidance

Fig. 5.—One of the four Monotype composition casting machines. Five keyboards supply the punched and spooled ribbons.

Fig. 6.—In the composing room all made up type and combination type and cut pages are adjusted precisely to width and length on this Hacker page makeup gauge. In this way, (several hundred a month) all pages sent to the electrotype foundry will be as nearly alike as possible.

Fig. 7.—A Ludlow machine, assortment of matrices and face burnisher supply type matter for promotional purposes.

SUCCESSFUL FARMING

INSPECTION REPORT FOR ENGRAVINGS

MEREDITH PUBLISHING COMPANY

Date received 19

ADVERTISER		PRODUCT		ISSUE
To Be Run As	No. of Colors	SIZE OF MATERIAL		No. Progs Furnished
Cover	1 Color	Full Page	2/3 Page	1/3 Page	Type Patch Furnished
Insert	2 Color	Reg.	Reg.	1 Col	Type to Be Set
Body	3 Color	Bleed	Bleed	2 Col	Key to Be Set
	4 Color				No. of Pieces Furnished

CORRECT SIZES OF SF AD PLATES		STANDARD SCREENS		DEPTH OF ETCH (.001 inch)			
Regular Page	Bleed Page	B&W & 2 color 100		Screen	Shad.	Mid-tone	Hi-light
Full page—7 1/16x10 1/4	Full page—TBOG—8 1/8x12 1/8	Four color		100	1.8	2.6	3.8
2/3 page—4 5/8x10 1/4	Cover—TBOG—8 9/16x12 1/8	Yellow	133	110	1.6	2.4	3.5
1/3 page—1 col—4 5/8x5 1/8	2/3 page—2 col TBO—5 1/8x12 1/8	Red	120	120	1.5	2.2	3.0
1/3 page—2 col—2 1/16x10 1/4		Blue	120	133	1.4	2.0	2.9
		Black	120				

TYPE OF MATERIAL FURNISHED								
Original	Repro	Reilly type		Atlantic type	Electro		Other	
ENGRAVING		Yes	No	HALFTONES		Black	Blue	Red	Yellow
Sufficient Dead Metal				Screen					
With Beam				Depth					
Routing Satisfactory				Highlights					
Outlining and Trimming Good				Mid-tones					
Etched Shoulders OK				Shadow					
Type Matter Uniform				Tone Intensity					
Type Free From Undercutting									
Back of Engr. Free of Pits									
Engr. & Patch Same Thickness				CONDITION OF DOTS					
				Good					
PROOFING BY ENGRAVER				Shallow					
Proofed on Correct SF Stock				False Depth					
Correct SF Inks Used				Undercut					
Used Without Modification				Pin Points					
Normal Inking of Plates				Over Etched					
Altered Plates Reproofed				Irregular Dots					
Tone Value Same As Plates				Connectors					
Colors in Register				Hand Tooled					
Proper Sequence of Colors				Burnished Dots					
Were Color Bars Used				Missing Dots					
Proper Size				Pitted Dots					
In Correct Position				Hard Edges					
Indicate Even Inking				Worn Dots					
Proofed Wet	Semi-wet	Dry		Damaged Dots					
				Repaired Dots					

REMARKS

CHECKED BY

DISPOSITION

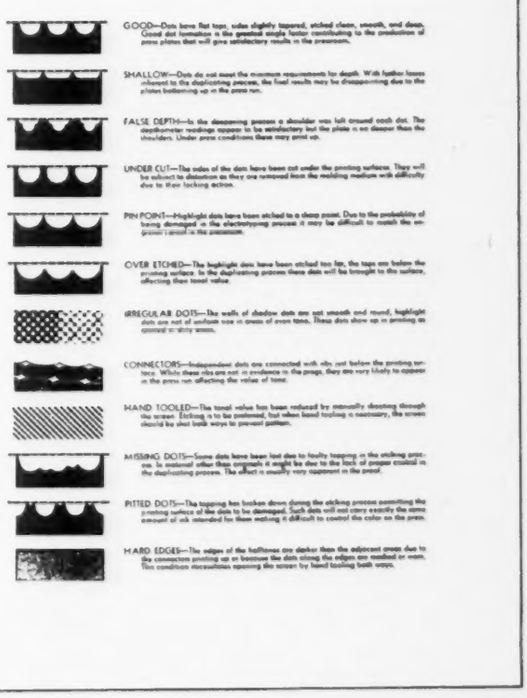
	Date		
Material Accepted			
Material Accepted Subject to Conditions Noted		Referred to	Date
Material Submitted to Be Used Without Responsibility		Referred to	Date
Material Rejected. Cannot Be Used in Present Condition		Referred to	Date
Progs Can't Be Matched but Reproduction Should Be Acceptable		Referred to	Date
Please Request Compliance With Our Specifications in the Future			

NOTE

REPAIRS MADE

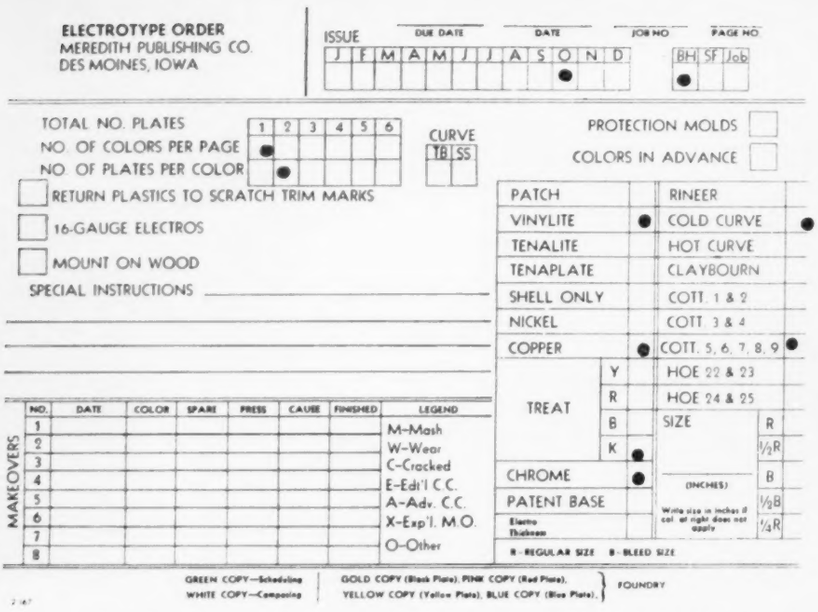
SUGGESTIONS FOR PRESS PLATES

Fig. 8.—Inspection Report for Engravings (front side at left) as used in the Printing Preparation Dept. of Meredith Publishing Co., Des Moines, Ia. Size of blank is 8 1/2 in. by 11 in. This type of blank is used both for *Better Homes and Gardens* and for *Successful Farming*. All photoengravings and electrotypes must be passed through Inspection before being sent to the Composing Room or to the Plate Foundry.


GOOD—Dots have flat tops, sides slightly tapered, etched clean, smooth, and deep. Good dot formation is the greatest single factor contributing to the production of press plates that will give satisfactory results in the pressroom.
SHALLOW—Dots do not meet the minimum requirements for depth. With further losses inherent to the duplicating process, the final results may be disappointing due to the plates bottoming up in the press run.
FALSE DEPTH—As the deepening process a shoulder was left around each dot. The depthometer readings appear to be satisfactory but the plate is no deeper than the shoulders. Under press conditions these may print up.
UNDER CUT—The sides of the dots have been cut under the printing surfaces. They will be subject to distortion as they are removed from the molding medium with difficulty due to their locking action.
PIN POINT—Highlight dots have been etched to a sharp point. Due to the probability of being damaged in the electrotyping process it may be difficult to match the engraver's proof in the pressroom.
OVER ETCHED—The highlight dots have been etched too far, the tops are below the printing surface. In the duplicating process these dots will be brought to the surface, affecting their tonal value.
IRREGULAR DOTS—The walls of shadow dots are not smooth and round, highlight dots are not of uniform size in areas of even tone. These dots show up in printing as scarred or dirty areas.
CONNECTORS—Independent dots are connected with ribs just below the printing surface. While these ribs are not in evidence in the proofs, they are very likely to appear in the press run affecting the value of tone.
HAND TOOLED—The tonal value has been reduced by manually shooting through the screen. Etching is to be preferred, but when hand tooling is necessary, the screen should be shot both ways to prevent pattern.
MISSING DOTS—Some dots have been lost due to faulty topping in the etching process. In material other than magnesium it might be due to the lack of proper control in the duplicating process. The effect is usually very apparent in the proof.
PITTED DOTS—The topping has broken down during the etching process permitting the printing surface of the dots to be damaged. Such dots will not carry exactly the same amount of ink intended for them making it difficult to control the color on the press.
HARD EDGES—The edges of the halftones are darker than the adjacent areas due to the connectors printing up or because the dots along the edges are meshed or worn. This condition necessitates opening the screen by hand tooling both ways.

In looking over this Inspection Report, it seems that just about all specifications have been covered, as well as all possible sources for defects in a photoengraving or electrotype (back side at right).

Since the Printing Preparation department has the last word as to whether plates shall be accepted, rejected or modified, it can be seen that the responsibility of the people in the department is a serious one. Particularly in three and four color process it is essential that the plates meet every mechanical requirement.


ELECTROTYPE ORDER
MEREDITH PUBLISHING CO.
DES MOINES, IOWA

ISSUE — DUE DATE — DATE — JOB NO — PAGE NO

J F M A M J J A S O N D — BH SF Job

TOTAL NO. PLATES — 1 2 3 4 5 6
NO. OF COLORS PER PAGE
NO. OF PLATES PER COLOR

CURVE — TB SS

PROTECTION MOLDS
COLORS IN ADVANCE

RETURN PLASTICS TO SCRATCH TRIM MARKS
16-GAUGE ELECTROS
MOUNT ON WOOD
SPECIAL INSTRUCTIONS

PATCH		RINEER	
VINYLITE	●	COLD CURVE	●
TENALITE		HOT CURVE	
TENAPLATE		CLAYBOURN	
SHELL ONLY		COTT. 1 & 2	
NICKEL		COTT. 3 & 4	
COPPER	●	COTT. 5, 6, 7, 8, 9	●
TREAT Y		HOE 22 & 23	
TREAT R		HOE 24 & 25	
TREAT B		SIZE R	
TREAT K	●	½R	
CHROME	●	(INCHES) B	
PATENT BASE		⅛B	
Electro Thickness		¼R	

Write size in inches if col. at right does not apply

R - REGULAR SIZE B - BLEED SIZE

MAKEOVERS

NO.	DATE	COLOR	SPARE	PRESS	CAUSE	FINISHED	LEGEND
1							M-Mash
2							W-Wear
3							C-Cracked
4							E-Edt'l C.C.
5							A-Adv. C.C.
6							X-Exp'l. M.O.
7							O-Other
8							

GREEN COPY—Scheduling
WHITE COPY—Composing
GOLD COPY (Black Plate), PINK COPY (Red Plate),
YELLOW COPY (Yellow Plate), BLUE COPY (Blue Plate). } FOUNDRY

Fig. 9.—Reduced size showing of Electrotype Order in use in plant of Meredith Publishing Co., Des Moines, Ia. The original is 8 in. wide by 6 in. deep. This particular reduced copy of the blank refers to the October issue of *Better Homes and Gardens*. Positive and accurate instructions are given by means of the ⅛ in. round holes punched through all copies in the proper places. While it has not been filled in from a clerical standpoint, the punched holes in this instance not only identify the plate but also show that the electrotype is black and white, with two plates per color. The form is to be molded in Vinylite, the key plate is to be treated (relieved), each plate is to be cold curved for the press cylinder, and all plates chrome plated. Presses upon which the plates are scheduled are also shown.

Six copies of the blank are made up as indicated along the lower edge for the Scheduling, Composing and Foundry departments.

Fig. 10.—Some interesting operations take place in the Inspection department which is interposed between the composing room and electrotype foundry. This 20X Spencer-American Optical is used to detect defects in plates which might cause trouble when printing from them on the press. Both photoengraved and electrotype plates are checked for depth of interstices between halftone dots, to see whether dots are undercut or shouldered, if they are consistently of same height and if "bridging" is correct. Here the operator is checking the halftone area in an electrotype plate. Through the head of the Printing Preparation department, all cuts and electrotypes not meeting Meredith's rigid specifications are rejected.

of Scheduling, Composing, Platemaking, Press, Bindery, Mailing and Shipping departments.

After the dummy has been pasted up completely and has been approved, it is sent to the Scheduling department. At this time, since the content of the issue is frozen, the actual Plan of Running or Production Schedule (see Fig. 1) is made up.

The dummy is now sent to the composing room. As the pages are made up and proofed, all editorial and advertising proofs are marked with red pencil. The pages are locked up with bearers for the electrotype foundry. The dummy pages and the page proofs with bearers are sent to the Scheduling department which in turn submits them to the Editorial and Advertising departments. This is the final inspection of page proofs for possible corrections before sending the forms to the electrotype foundry.

An interesting bit of information imparted by Scheduling Mgr. Jolley is that press runs for both *Better Homes and Gardens* and for *Successful Farming* are scheduled so that both magazines will be finished simultaneously. Subscribers to both magazines receive their copies at

Fig. 11.—In the Electrotype Foundry all new cast electros are subjected to a light pressure bump on an Ostrander Seymour direct pressure press, using a Hengst base, to level plate for a first shave. On the slidable bed of the press rests a chase containing what are called Hengst straightening points. The points are slightly loose in their positions and are spaced ¼ in. apart. The contact face of the points is ⅛ in. diam. The plate is laid on the form printing face up. When the press closes, sinks and buckles in the printing face are brought up to a common level.

Fig. 12.—Of the electrotypes, 95% receive further treatment for makeready purposes on this Bishop plate treating machine, but before passing the plate through the rolls in the machine, a top and bottom Bishop treating mat, something like an overlay and underlay, (they are called dies) are placed top and bottom of the electro. When the sandwich is passed through the rolls the plate is deformed to raise the solid and middletone areas so that when the plate has been subjected to pressure of the dies, the solid areas will be highest, the middletones next in height, and the highlight and type areas will be the lowest, from 0.003 to 0.005 in. below the solid areas. This provides height differential in the plates which all letterpress pressmen dote upon, since the solid areas offer greatest resistance to printing press impression pressure and print better.

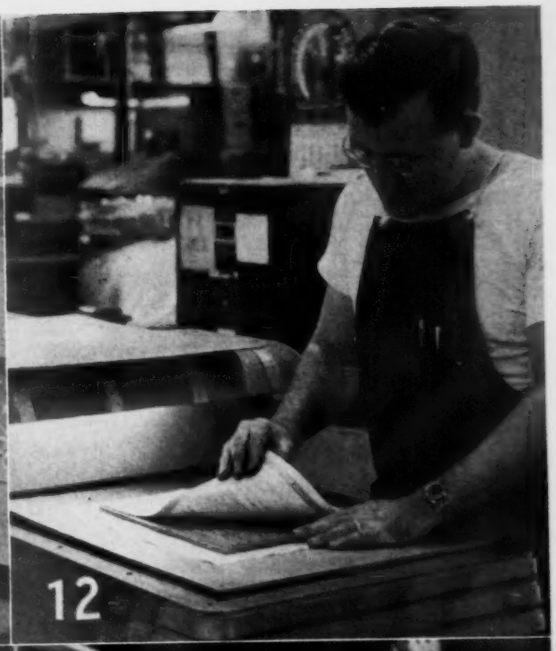
Fig. 13.—This is a Hoe Vertical Cold Plate bending machine which is used to curve flat plates so they will fit the curvature of the press cylinders snugly.

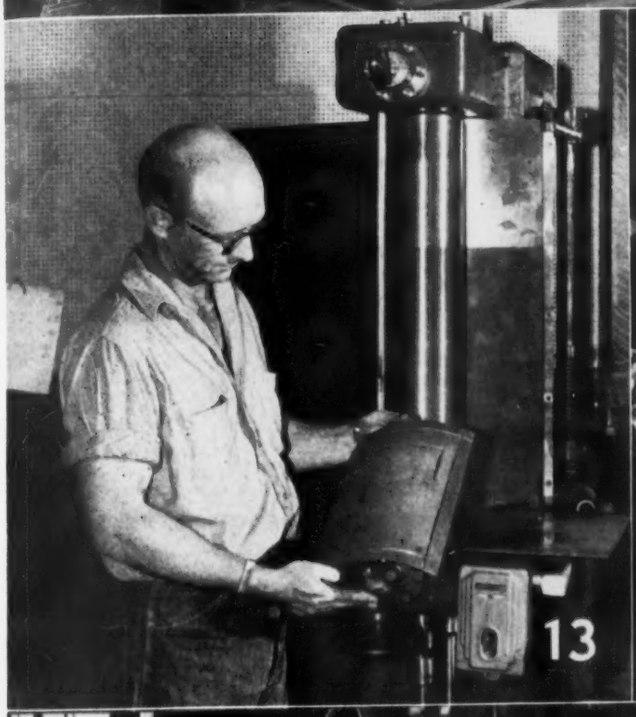
Fig. 14.—Another interesting operation is a method for indexing a set of color plates so the pressman can place all plates in a set in approximately correct position quickly on the plate cylinder of the press. The cylinder on this machine is calibrated like the plate cylinder on the press. Scored in the cylinder is a gauge line for the head of the plate and a dotted line for the gutter edge of the plate. The black plate is fastened in position on the cylinder and a point somewhere in the design is selected as the gauging point. This point is located by the needle shown in elevated position in this illustration. The needle can be raised or lowered as the plates are changed without disturbing its setting. The yellow, red and blue plates are marked by the operator at the same place selected for the registering point on the back plate.

Fig. 15.—This is a Bishop Consoleveler Machine. It is used to perform what is called a solidifying operation on electrotype plates. The electro is laid face down on the bed of the machine. A series of steel rolls through cantilever pressure compacts the backing metal giving even pressure to an uneven surface, leveling the face of the plate, taking out sinks and soft spots, doing 95% of the finishing and changes the molecular structure of the metal to make the backing metal of utmost density.

Fig. 16.—View of Ostrander-Seymour Plate Beveling machine. Several plate edge bevels are employed for different press cylinders at Meredith. As will be seen in the illustration a cutting saw is mounted direct on the motor. The sliding carriage motion is parallel to the saw blade. Now, in order to secure the proper degree bevel on a curved electrotype, the operator raises one of the segments to upper position. The segments are attached to the sliding carriage on the same axis. When one of the segments is in raised position, it not only provides for the correct bevel on the plate edge, but the curved top serves as a saddle upon which the plate rests while being beveled. The segmental attachment eliminates adjustment of the saddle by the operator—the adjustment is automatically determined by simply raising one of the segments. This device was developed at Meredith.

11


12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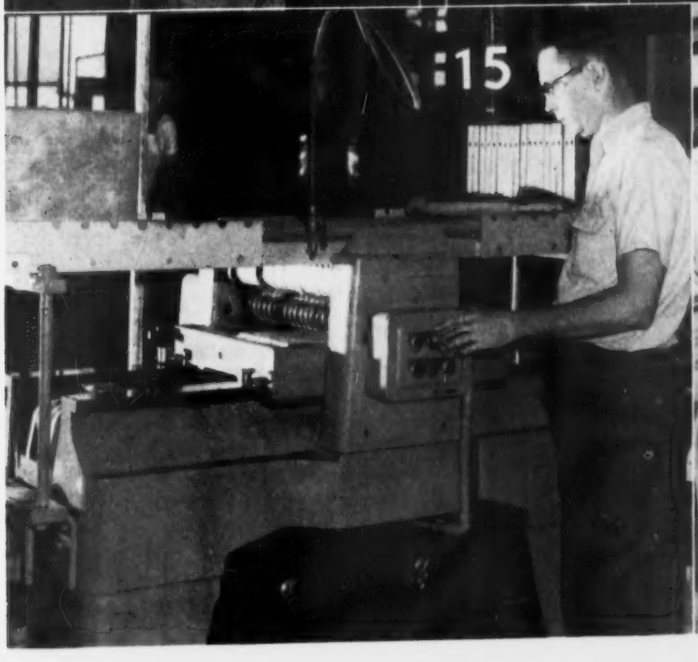
14


15

16

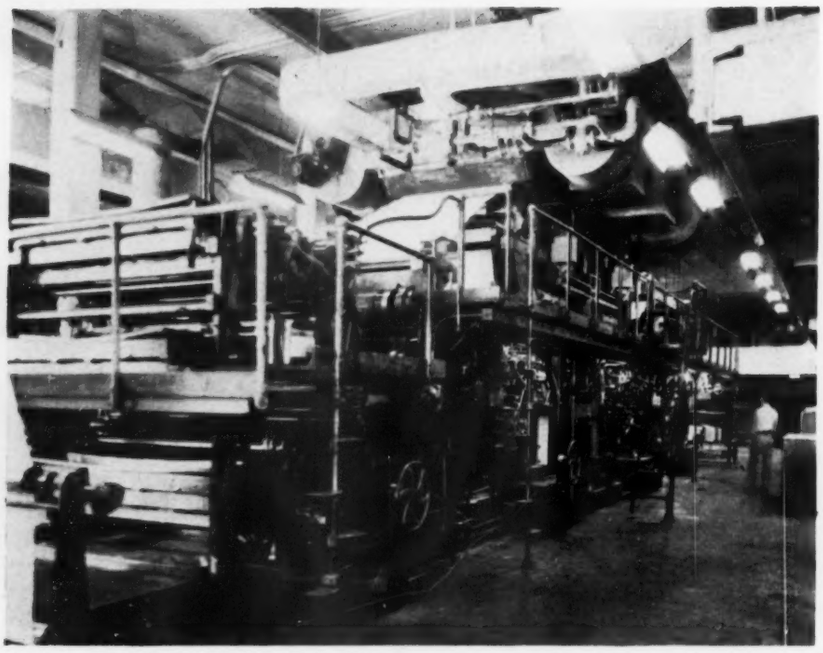


Fig. 17.—Cottrell Double Five Color Letterpress prints 5 colors on each side of the web once through the press. On it 40 pages of *Better Homes and Gardens* can be printed in one operation. Roll width is approx. 64 in. with 40 1/8 in. cutoff. Running speed is up to 17000 i.p.h. folded signatures at delivery. This particular press is equipped with Levey steam drums. The press shown here is one of five Cottrell rotary web presses; there are also 9 Cottrell-Claybourn sheet-fed rotary presses in the magazine pressroom.

close to the same time each month. The circulation of *Successful Farming* is less than for *Better Homes and Gardens*, consequently, the printing for the former commences 10 days later.

It was explained by Mr. Jolley that the four gathering and stitching machines (see Fig. 19) are not busy during the early two-thirds run of *Better Homes and Gardens*. This permits using the fourth machine for job work, such as the *BH&G Cook Book*, the *Garden Book* or other Meredith hard bound publications.

Quality Control

It is an objective at Meredith to maintain a continuous drive for improvement in the quality of letterpress printing. The publishers at all times are trying to help the advertiser and others concerned with respect to cost, quality and the shortening of the time element involved in producing magazines. The Director of Production and Engineering, Jerry Stouffer, and his staff are interested in working with photoengravers, advertisers and other interested people in getting better photoengraving.

A constant check is maintained on press sheets during a run. The pressroom foreman inspects sheets once every hour. In the bindery, inspection occurs every 15 min.

At the commencement of every press run, a committee gets together. The committee consists of one each representative from the press room, platemaker, ink chemist, editorial, advertising service, the head quality inspector and one from the art department. Occasionally, when the situation warrants, a representative from the administrative office is called in. The chairman of the committee can call in any departmental representative not regularly on the committee.

Also under the supervision of the Director of Production and Engineering, a waste control program is in effect. This activity is concerned with materials and paper handling waste.

Materials Testing

When an establishment uses large quantities of materials at regular intervals it is necessary not only to establish specifications for the materials required but also to test the materials shipped into the plant. It is also a function of Materials Testing to examine materials which it is contemplated might be used. Some of the materials tested once a month are type metals, adhesives, paper, inks purchased outside, and plating solutions.

Industrial Engineering

Since 1945 Meredith has increased its industrial engineering department from 4 to 14 engineers now under the Supervision of Robert Spry. Also have been added three men who are engaged in mechanical research. Some of the objectives being worked on at the present time are pressure-cast curved electrotypes, certain improvements in existing machinery, as well as conveyors and printing press electronic web controls. A major problem upon which Meredith is working is the reduction in rotary press plate makeready time.

Printing Preparation

One of the most interesting operations at Meredith is the Printing Preparation department. This activity is supervised by Verner J. Mauk whose responsibility it is, through heads of the Engraving, Composing, Inspection and Electrotype Departments, to see that all type and plates (both outside originals and those

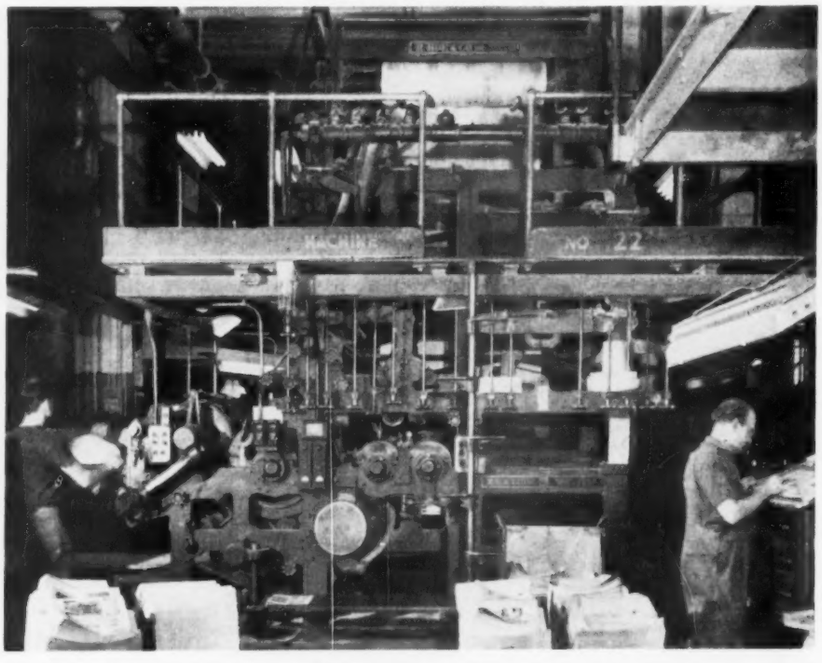


Fig. 18.—Close up view of one of the two Hoe 64-Page Rotary Letter presses printing 2 colors on each side of two webs or four colors on each side of one web. On these presses can be printed 64 pages of *Better Homes and Gardens* at a speed up to 1000 ft. per minute.

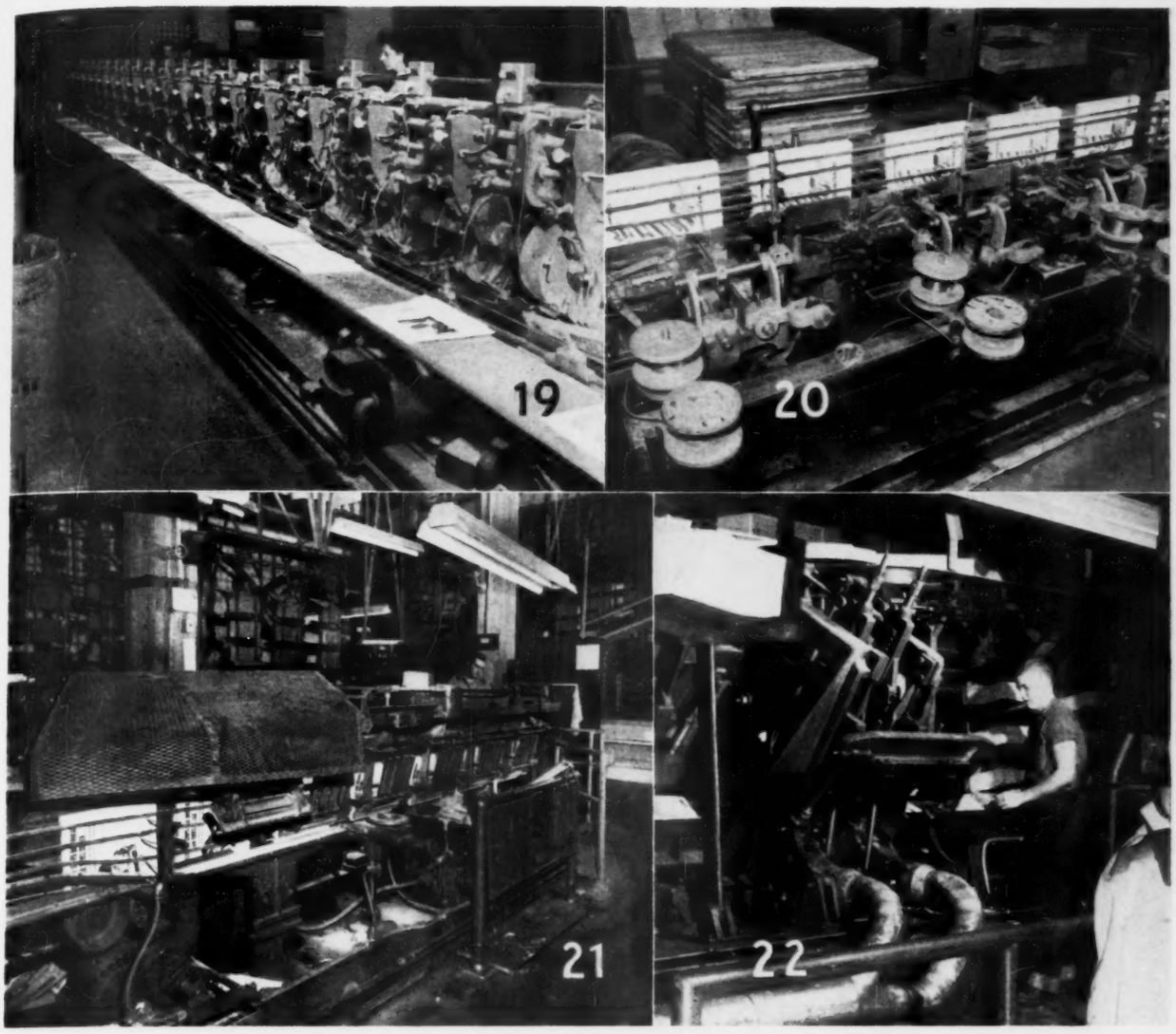


Fig. 19.—View of one of the automatic magazine gathering and side stitching machines (there are four) in plant of Meredith Publishing Co. Attendants place quantities of signatures in the pockets (there can be as many as 32 signatures) which will be gathered in sequence as the conveyor carries them along to the stitching end of the machine. These machines gather up to 5000 complete magazines per hour. Signature piles are replenished by operators from skids as needed.

Fig. 20.—The gathered signatures are brought to the stitching heads automatically where the now completed magazine with exception of the cover receive one wire stitch from each of the three stitching heads.

Fig. 21.—The stitched magazines are processed through this Dexter cover gluing machine. Covers are folded, glue applied and the cover is formed about the magazine automatically.

Fig. 22.—One of the most interesting types of machines at Meredith Publishing Co. is this Seybold three-knife book trimmer. The books are taken from the trolley conveyor and placed in stacks in the machine for trimming. Each stack pauses momentarily under the two-knife station where the top and bottom edges of the magazines are trimmed simultaneously by properly spaced knives. The stack is then passed under the next station where the outside (or right-hand edge) receives its finishing cut from the knife. From 20 to 24 cuts of 5 in. depth per min. are trimmed on this machine. After having been trimmed, the magazines are replaced on the conveyor for transportation to the Mail Room, or they may be taken from the conveyor and placed in temporary storage. The two pipes extending from the machine pull paper trimmings to waste disposal by means of exhaust air.

made by the photoengraving subsidiary) as well as the actual plates from which the magazines are printed, are made to exact specifications. It is a well known fact that in the relief printing process all form elements and plates must be fabricated to exact specifications. In the page forms alone there are so many thousands of separate pieces including the photoengravings. Consequently, a constant and rigid control with respect to specifications must be set up and maintained. Just because there are so many printing elements in a form, their maintenance with respect to printability would seem to be a rather difficult task. The problem, however, is not insurmountable.

Pioneer in Inspection

Meredith was one of the first large printing plants to establish printing element inspection 25 years ago. Since then, the methods have been simplified and improved so that today it is a rare occurrence when a printing plate reaches the presses in anything but as near perfect printable condition as possible.

The Printing Preparation department is the last word as to whether the quality of a printing element (such as an engraving) is good enough. On the other hand, this department takes the responsibility if forms and curved press plates do not print well.

From time to time, one hears criticism about letterpress—its precision, uncontrolled height of the printing elements, expensive press makeready time, and the like. If you were to ask anyone at

Fig. 23.—A peek into the magazine bundle wrapping department of Meredith Publishing Co., Des Moines, Ia. Here the mailers at their individual stations remove stacks of magazines from the constantly moving trolley conveyor, wrap the required number of magazines, and tie them with twine. The bundles are placed upon a conveyor which transports them to the position where a shipping label is attached to each bundle.

Fig. 24.—The bundled magazines, properly labeled, are removed from the trolley conveyor and placed on skids for transport to waiting railroad cars or road trucks as the case may be.

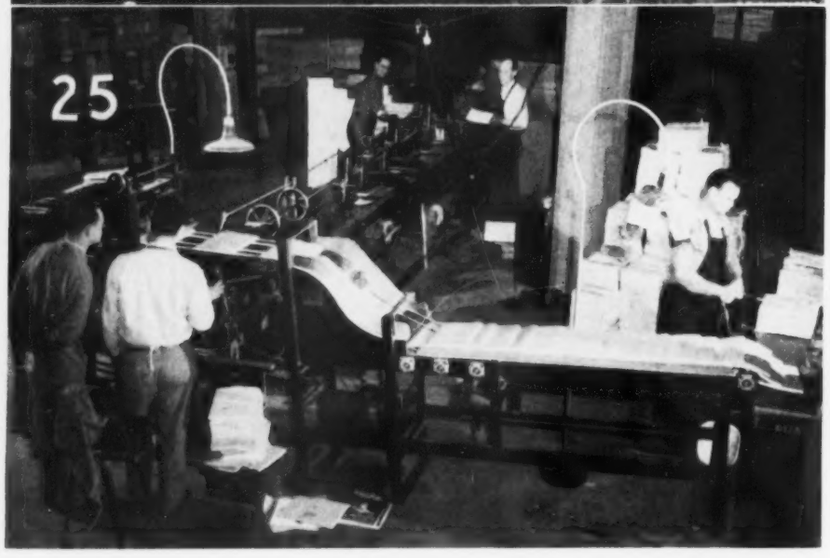


Fig. 25.—View of Collmar magazine single wrapping machine in action in plant of Meredith Publishing Co., Des Moines, Ia. This machine will automatically wrap and address 6000 single-wrap copies per hour.

Meredith: "What is wrong with letterpress for magazine printing?" they would answer: "Nothing, if you approach letterpress printing on a precision basis."

The active inspection section of the Printing Preparation department itself is located between the Composing Room and the Electrotype Foundry. It is well equipped with tools and instruments for checking the quality of printing elements. The department is in charge of Floyd Green. Some of the equipment to be found here consists of two four-color proof presses (one Claybourn and one Vandercook), an American Optical Spencer 20X microscope for checking halftone etching depths, Hacker height-to-paper plate gauge, micrometers, color plate register lightbox and other tools and instruments together with inspection report blanks on which are indicated the quality of the printing plates.

Wood Base Discarded

The inspection department examines all type matter and plates. If any originals (black and/or color process plates included) as well as electrotypes, come into the plant mounted on wood, the plates are removed and the wood base is discarded. No wood base mounting is permitted. The plates (all sizes) are mounted with thermoplastic adhesive on solid metal base. This base is manufactured right in the electrotype foundry. The base metal is cast from a 12 tin, 17 antimony, balance lead formula. It is planed to exact height on a Claybourn shaver so the mounted plate will be 0.918 in. high.

Mr. Green explained that about 2100 page plates for *Better Homes and Gardens* and for *Successful Farming* are examined each month in his department. Four-color plates account for many of the 2100 plates examined.

Critical Examination

All four color process original plates, whether for editorial or advertising use, must undergo rigid inspection for size, height and etching depth. Original plates

coming from the engraver are not checked for register. Proofs of each of the original color plates are taken on one of the Claybourn proof presses in black ink.

Such proofs reveal whether or not the Meredith metal mounting for the set has been done correctly and also if there are any dents or scratches which might have occurred in shipment and subsequent handling. Meticulous care is exercised in this operation because color process plates are expensive and imperfections in even one original plate, if permitted to be reproduced in the press production plate, could cause untold further expense.

Checking Electros for Register

When a set of color process electrotypes, for instance, has been received, the inspection treatment is similar to that accorded original engravers' plates, except an additional operation is introduced. The electrotypes are checked for register by wet color proofing on the Claybourn proof presses. Proofs are taken on 0.010 in. thick transparent Cellophane. The dried Cellophane proofs are then superimposed one upon the other according to register marks. They are then laid upon the frosted glass surface of a viewing box so the light rays from beneath will permit critical examination with a glass to see if all four plates are in register.

It is not possible in this article to explain in detail the skill exercised by the inspector nor the further proofing and handling of the plates. Proofs of the editorial and advertising plates, however, are sent to the respective departments for customer and departmental use, including the making up of the magazine dummies.

In case an advertising agency wants a customer's original photoengraved or electrotype advertising plates returned, a Vinylite mold is obtained from each of the original plate or plates. These are called protection molds and permit shipping advertising plates immediately either to the agency or to some other publication.

A record is kept in the inspection department with respect to corrections on electrotypes, that is, scratched plates, plates with chrome damage or those that may have been dented in shipment or through handling.

Making Electrotype Plates

Gene Duvall is Foreman of the Electrotype Foundry and Blocking Department where about 32 men are employed. Meredith makes about 95% of its electrotype plates, the balance being furnished by the Capital City Printing Plate Co., in Des Moines. Engravings, of course, are shipped into the plant by the advertising agencies. In turn protection Vinylite molds are taken from the electrotypes in case the advertiser wants the plates shipped to some other point.

We won't cover the complete process for making electrotype plates. Instead, a number of operations will be discussed. Mostly, these have to do with quality control and compliance with standards set up by Meredith for its own protection.

After the locked up form has been molded in the electrotype foundry, the mold is sent to a booth where it receives a coating of silver nitrate to make it conductive in the plating tank. The mold now is coated with 0.001 in. nickel deposit before the copper shell deposition. The nickeled copper shell is then passed through a conventional piece of casting equipment where backing metal is deposited on the shell to bring the electrotype plate up to approx. 0.300 in. thick. This is considerably more than the actual finished thickness of the plate which is 0.189 in. There yet remain a number of fabricating operations which are explained as follows:

First, the flat plate is placed face up in an Ostrander-Seymour hydraulic press. The bed of this press is covered with a chaseful of Hengst blocks with round steel points 0.065 in. diam. spaced ¼ in. apart each way. When the press is closed, the steel points exert an upward pressure from the backing metal surface of the plate and straighten out the nickel plate against the upper press platen. This is used with a very light bump enough to straighten plate for a first shave cut to 0.265 in. thickness.

The plate is then run through a Bishop Consoleveler, leveling the face of the plate, eliminating sinks, soft spots and doing about 95% of the finishing. The solidification the plate receives in this machine is a tremendous help in the plate holding up under long heavy press runs without breaking down.

The plate is now put through an Ostrander-Seymour rotary plate shaving machine where 0.040 in. of the metal is removed from the base of the plate to make the plate 0.225 in. thick. Here the electrotyper checks final finish, then shaves to 0.198 in. thickness.

Next, plates are covered with two dies —one at top and one at the bottom— with Bishop makeready mats. These treating mats are three ply laminated sheets. In this operation, the platemaker cuts laminated dies from three thicknesses of stock so that when the dies are placed on opposite surfaces of the electrotype, the plate can be placed under pressure to receive makeready treatment. That is, after the plate has been passed between the rolls of the Bishop machine the dies cause the solid and middletone areas to be raised in the plate, leaving the highlight and type areas at bearer level and the solid and middletone areas from approx. 0.003 in. to 0.005 in. above the highlight and type areas in the plate.

After the plates have passed through the Bishop machine, the lower mat is removed, permitting the face mat to remain on the plate. Plate and mat are then run through a Cottrell plate shaver to make the bottom of the plate an all-over even surface level since the dies have previously deformed the underside of the plate. In this operation, the printing surface of the plate retains its variable height according to printing value with the solid areas highest. The bottom or base of the plate, however, has now been planed to an all-over level. The plate at the thickest sections is now planed to its final thickness of 0.187 in. The plates are then squared and curved for beveling purposes.

The magazine plates are curved on an Ostrander-Seymour cold curving machine. In this operation a curved saddle and rolls are employed to curve the plate while cold.

Curved plates are then placed in an Ostrander-Seymour curved plate beveling machine 45 deg., 60 deg., or 70 deg. bevel on the edges of the plates according to the press cylinder on which the plate is to be mounted. The plate bevel corresponds to the bevel of the locking hooks in the grooved plate cylinder.

The completely processed plates are sent to the Inspection department where page proofs are taken before actual production printing begins.

If there are any imperfections in a plate, it is sent to a plate finisher. After the fault has been corrected, a proof is taken for Inspection department. The plate now receives its flashing of chrome on the printing surface.

The chromed plate is then provided with an 0.008 in. all-over underlay to bring it up to 0.195 in. so that all plates will be the same thickness.

Photoengraving

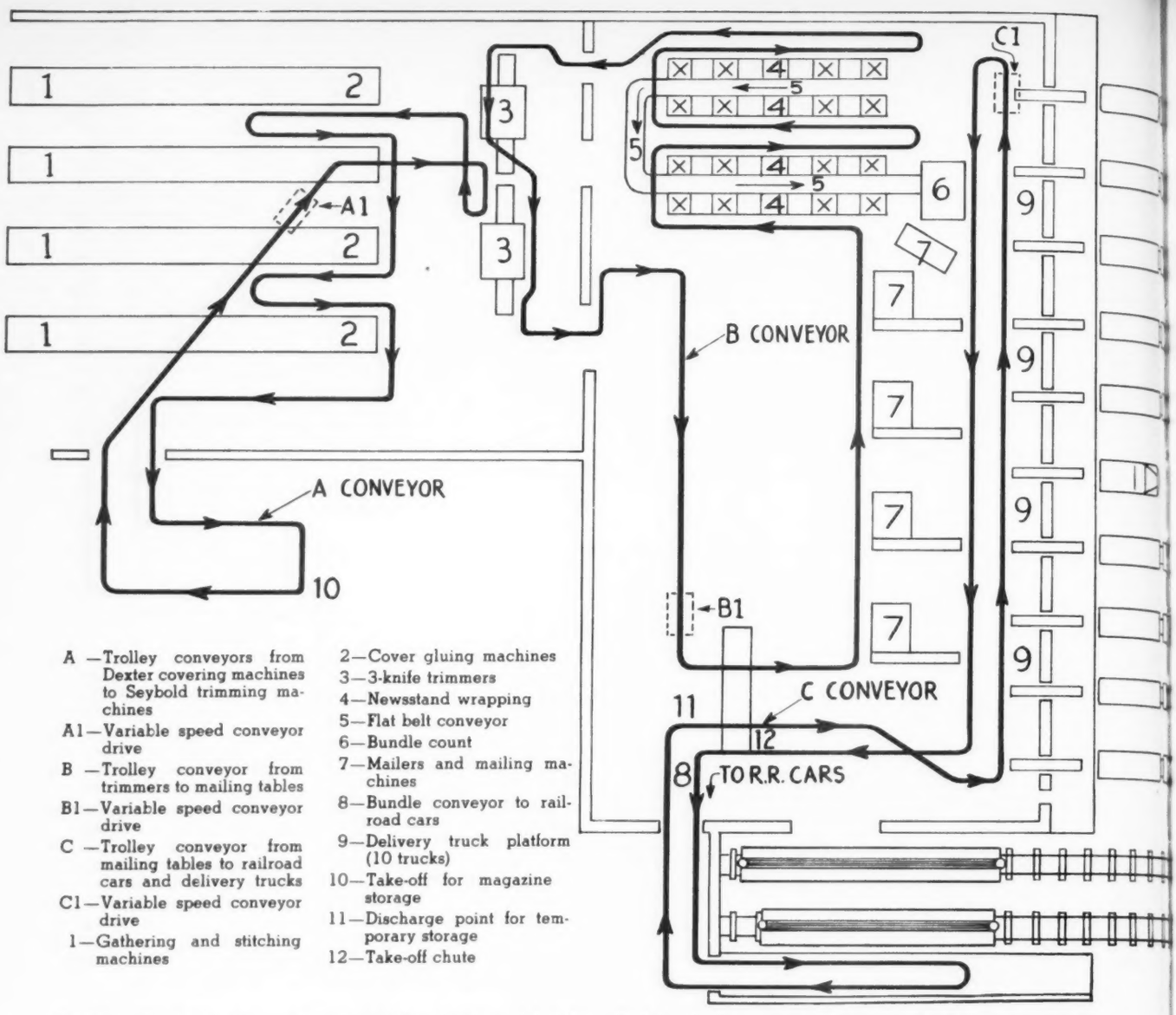
Meredith acquired the Commercial Engraving Co. photoengraving plant in 1948. It is situated a short distance from the main Meredith plant. At present it is operated as a subsidiary, but eventually, the plant will be integrated with the main Meredith operation. With the exception of four color process work, all Meredith engraving is done in the plant. This work consists 95% black, the balance black and one color. Including the office force, 17 people are employed. The photoengraving plant is in charge of Al Grabowski. As has been mentioned elsewhere in this article, all engravings are sent to the electrotype department where they are mounted on solid metal base.

Composing Room

The Composing Room is presided over by George Regan where about 28 men are employed. Type composition is done on Monotype keyboards and casters. A Giant Caster and a Monotype Material Maker furnish spacing material. In addition there is a Ludlow machine with 12 series of type faces and a slug burnisher. Hacker Gauges are used in making up all magazine pages to insure uniformity in dimension. Composition is 100% nondistributing.

All form elements are metal, including foundry-cast bases for engravings and/or electrotypes.

An average of 300 pages per month for *Better Homes and Gardens* and 200 pages



A —Trolley conveyors from Dexter covering machines to Seybold trimming machines
A1—Variable speed conveyor drive
B —Trolley conveyor from trimmers to mailing tables
B1—Variable speed conveyor drive
C —Trolley conveyor from mailing tables to railroad cars and delivery trucks
C1—Variable speed conveyor drive
1—Gathering and stitching machines
2—Cover gluing machines
3—3-knife trimmers
4—Newsstand wrapping
5—Flat belt conveyor
6—Bundle count
7—Mailers and mailing machines
8—Bundle conveyor to railroad cars
9—Delivery truck platform (10 trucks)
10—Take-off for magazine storage
11—Discharge point for temporary storage
12—Take-off chute

Fig. 26.—This is a diagrammatic representation (not to scale) of the paths taken by three sections of an Overhead or Trolley Continuous Conveyor System in plant of the Meredith Publishing Co., Des Moines, Ia. The conveyor equipment was installed by Mechanical Handling Systems, Inc. The conveyors transport the two Meredith major publications to processing points from bindery to shipping platform.

per month for *Successful Farming* are locked up for the foundry. There is also composition and makeup for 12 Meredith book printing projects which are revised annually and a large amount of promotional and circulation pieces. All of the books are printed from curved plates.

Press Department

Press Supt. Perry Albaugh explained that the pressroom is operated three shifts around the clock five and six days a week. There are 360 employees including porters and stock handlers. The skid paper is trucked in from storage by tiering trucks. Roll paper is handled by automatic lift trucks.

The 19 printing presses in the publication pressroom have considerable capacity, approximately 185,000 i.p.h., much of it in four-color work. The equipment consists of eight Cottrell rotary web presses and two Hoe rotary web presses. In addition there are nine Cottrell-Claybourn rotary sheet-fed presses.

All magazine printing is done on rotary presses. In the job press room there are a number of cylinder presses: two Kelleys, four Miller, a Miehle 2-color, a Miehle Vertical and a C&P platen press. In addition, Meredith maintains an offset press department consisting of two Multiliths and 4 Harris presses, two of which are two-color machines.

Packing the Press

One of the interesting developments at Meredith is that the printing face of many of the curved magazine plates has been relieved so that the solid areas are perhaps 0.002 in. to 0.003 in. above the highlight areas. Because of face height variation in the plates, there is a slight compensating cushion between printing plate and hard packed impression cylinder. The impression cylinder is dressed with a thin rubber faced top sheet. In this way the principle that solid areas in the plate when printing letterpress must have more impression squeeze is obtained and at the same time, liability of plate breakage due to rigid cylinder contact is eliminated. A look at any of the magazine pages produced at Meredith's indicates that the printing is excellently done in every respect.

Mr. Albaugh also explained that a flashing of chrome 0.0001 in. thick is plated on all rotary magazine plates. Thus the plates last throughout the 3,800,000 run on *Better Homes and Gardens* without replacement which formerly was due to worn plates.

Trolley Conveyor System

An outstanding example of work simplification (giant size) is the magazine conveyor system in use in the mechanized

Bindery, Mailing and Shipping departments of the Meredith Publishing Co. This conveyor system is one of the marvels of modern plant engineering. On it are handled each month 3,700,000 copies of *Better Homes and Gardens* and in excess of 1,300,000 copies of *Successful Farming*.

In conversation with Asst. to Director of Mfg. Jerry Stouffer and Manager of Engineering Robert Spry, the conveyor system was explained to *Printing Equipment Engineer*. The system, in a large way, really is a form of work simplification. It eliminates the use of hand trucks for mass magazine processing movement. By use of overhead air space there is a saving in floor area. Floor repairs due to truck traffic are eliminated. Best of all, even though it can't be counted in exact dollar value, the system is easier for the workers. There is also a saving in trucking operations between departments.

As will be seen in diagram Fig. 26, there are three overhead or trolley conveyors, each performing a specific job in transporting heavy lifts of magazines from one processing point to the next. In the words of Henry Ford: "The work is brought to the man."

The three trolley conveyors travel around and through the Bindery and Mailing Room to the shipping platforms where the bundled magazines are taken from the conveyors for shipment by railroad or delivery truck. The conveyor buckets or carriages travel above equipment and work aisles, turn corners and where necessary they dip to a level which permits workers placing magazines in or taking them from the traveling buckets.

The timing of conveyor bucket travel is such that once the flow of magazines starts from bindery to shipping platform there is no hitch. One wonders how it is possible for the human element to keep up with the flow of buckets carrying magazines until he has had explained to him that the system is flexibility itself. To begin with, the timing of conveyor flow to processing operations has been figured to a nicety. Each trolley conveyor is in the form of a complete loop—that is, it is endless. While in operation, the workers do not necessarily have to place a lift of magazines on all three shelves of each bucket, nor in each succeeding bucket as it passes the processing point. Nor does the worker need to remove a pile of magazines from each bucket as it passes his station. Thus, if a lift is not removed from a bucket, it merely circles the loop and on the return trip passes by the worker who missed removing the lift at the first passage.

In certain cases, emergency conveyor take-off points (*10* and *11*, Fig. 26) are provided. At these points, the magazines may be unloaded and reloaded for temporary relief at the processing points. In some instances, too, the take-off points are deliberately used to permit quantity storage of magazines in case something happens to one of the trimmers, if the mailing force is undermanned, or if it is desired to operate overtime shifts, or separate succeeding shifts of the gathering and stitching crews, the trimmers newsstand wrapping, the mailing crew or delay in railroad or delivery truck loading facilities. Obviously, when magazines are to be taken from storage for processing, any or all of the conveyors may be operated. The magazines from storage points, *10* and *11*, are loaded on the conveyors as needed.

Another item showing the flexibility of the system is that temporary small-quantity storage tables are provided at the cover gluing machines *2*, the Trimmers *3*, Newsstand Wrapping *4*, and the Mailers *7*.

Referring to diagrammatic Fig. 26, it will be seen that the overhead conveyor system has been constructed in three sections: A, B and C.

The A conveyor extends from the binding machine *2* to the trimming machines *3*. This conveyor is 600 ft. long and consists of 300 buckets or carriages and 900 shelves (three to each bucket). In the case of the two primary Meredith publications, *Better Homes and Gardens* and *Successful Farming*, one of the books can be conveyed to one trimmer *3* and the other to the second trimmer *3*.

The B conveyor extends from the trimming machines to the addressing mailers' stands and to the newsstand wrapping tables. This B conveyor is 450 ft. loopwise, is fitted with 234 buckets, each containing three shelves and is operated at from 20 ft. to 60 ft. per min.

The C conveyor (556 ft. long) circulates alongside the mailers and delivers bundles and sacks to railroad cars or delivery trucks. There are 119 buckets. The C conveyor is operated at from 20 ft. to 60 ft. per min. There are 12 discharge stations, 10 to the delivery trucks, one to the railroad cars and one to storage.

In this article, the direction and disposal of bundles and mail sacks containing magazines will not be discussed, except to say that the dispatch man on the shipping platform does the sorting by means of a key system which designates whether the bundle or sack shall be tripped into a railroad car or at one of ten truck stations. In some cases, if the truck has not yet backed up to the shipping platform, the bundle or sack is not removed from the bucket but is recirculated for a time.

The ABC of OFFSET

For Letterpress Printers

Series Two

By George Jos. Lenzer

XII—DOUBLE PRINT LAYOUTS

DOUBLE printing is a frequent necessity when economy, efficiency, time and the quality of the reproduction are determining factors.

Example 1: A job has been printed and the original flat has been saved. A re-run is ordered as is (except for a minor change). Copy for the change is photographed. The negative is found to be of such nature as to make stripping too difficult and time consuming.

Here a second layout is made in close register with the original flat in all respects to gripper edge, side guide and center lines. These two units are then released to the stripper who superimposes the new layout over the original and fastens them to the glass top of the stripping table.

Where the change is to be made, a window is cut in the new layout sheet and the new negative is positioned in register in the space allocated. The new negative is fastened to the new layout with Scotch tape after which the new flat is removed. That portion of the original flat which is to be changed is now blocked out or rendered opaque.

The platemaker will first expose the corrected original flat. During exposure, that area where the change is to be made, having been rendered opaque, is unaffected by the action of the light and remains light sensitive on the plate.

After exposure, the original flat is removed from the plate and is replaced with the new flat which is then exposed. By this method the required change is made with little or no difficulty. It is this procedure which is generally followed in the production of printing plates by the albumen process.

Example 2: In the deep-etch process, procedures outlined in Example 1 are duplicated except that the cameraman makes the double print when he produces the required positive transparency.

The same procedure is employed when a single negative is required for inclusion in a large flat layout in cases where a double print by the platemaker might be

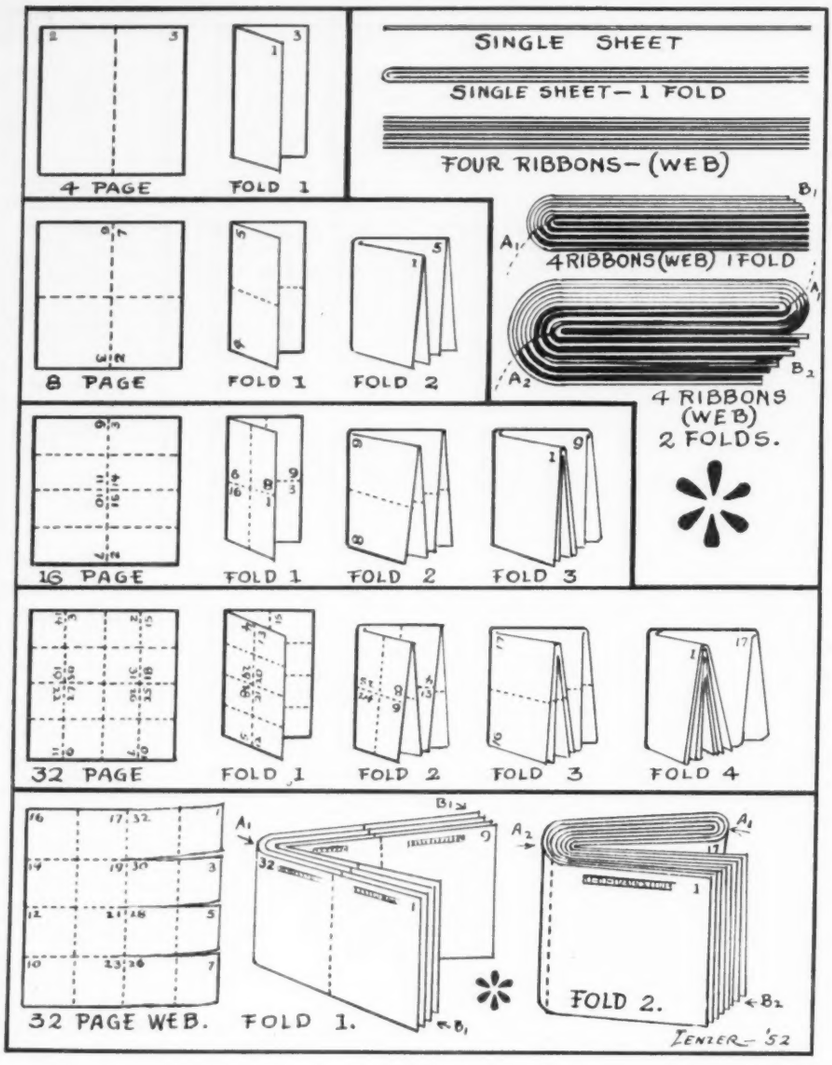


Fig. 9.

difficult to make. In this instance a contact negative of the double printed positive is made by the cameraman.

Layouts for Web Offset

Our discussions of straight line layouts so far, have been layouts pertaining to sheet fed presses, folding machines and cutters. We will now consider the highly specialized job of layouts for the web press and folder, and the problems facing the layout man.

For the benefit of the uninitiated, we will attempt to form a word picture of this equipment.

The press or printing unit is designed to print both sides of a roll fed web of paper. Two printing plates are required.

In the folding unit are included devices for slitting, perforating, folding and cutting.

Paper is fed into the press from rolls and is threaded through the press, passes overhead and is fed into the folding unit. Here the paper is slit into ribbons, the ribbons are then collated, perforated, cut and folded. The printed, cut and folded signatures are then delivered much in the manner of a printed newspaper.

This continuity of mechanical operations poses problems seldom associated with straight line layouts for sheet fed equipment.

Double Trouble

The layout man must consider everything in the manner of doubles.

Two printing plates are required (front and back-up. These must assure accurate back-up register of the printed impressions which occur simultaneously.

The two plates are direct opposites. Whatever is left-hand on the front plate is right-hand on the back-up.

Page numbers are direct opposites in imposition on the layouts and printing plates, and are contrary to the impositions of the letterpress makeup man and printer.

While only one thickness of paper is being printed on two sides in one operation (in the web press discussed in this chapter), a stack of two, three, four or more sheets of printed paper is being slitted, cut, folded and delivered from the folding unit. (Fig. 9).

Each Job Poses Layout Problems

Each job, unless highly specialized and repetitive, imposes many layout problems such as the following:

Number of pages in the completed volume,

Number of pages in each signature,

Number of printed sheets or pages in each section,

Number of included blank pages,

Number of page inserts,

Number of page wrap-arounds, exclusive of covers,

Kind, style or type of binding,

Correct spacing and margins for folding, binding and trimming,

Number of folds required for each signature,

Kind of fold, *i.e.*, accordion, lap, right angle or other. (See Fig. 9.)

Many of these problems demand individual and careful consideration. Frequently mathematical precision must be employed in the development of the layout for web printing.

Since the mechanical elements are limited to specific measurements, distances and paper thicknesses, with no provision for overcoming secondary difficulties, it is evident that the layout man must anticipate and provide for these difficulties in the layouts. Foremost of these difficulties is the distortion of the printed paper occurring during the finish processing of multi thicknesses of printed paper. (Fig. 9.)

Because these distortions occur with precise regularity and in common sequence, they can only be corrected by mathematical precision in the layouts. Consequently, the layout man should be provided with precision equipment and layout tables equipped with micrometric adjustments to thousandths of an inch.

The thickness of a "gnat's whisker" is frequently called the height of perfection. In register such perfection is unattainable, but when we compare it to measurable paper thickness we do have something definite to work with.

The accompanying illustration (Fig. 9) shows to what extent distortion takes place at the folds.

The inner folds should always be used as the measure for all layout positioning of page copy, never the outside enwrapping sheets. Trimming lines should be determined by measurement from the outermost face at the binding fold to the end of the outermost page sheet which will be found to be the shortest in length and most in line with the innermost first or primary fold of the stack. If we will remember that the entire first or primary fold must be trimmed away including the pyramidic pile of loose ends, and that the innermost binding fold must be cleared to allow side wire stitching in some instances, then, we will understand why the layout man should be provided the best precision equipment obtainable.

It is only with precision equipment that near perfection in register, body back-up and uniformity in makeup is attainable—never by the hit or miss or rule of thumb method of procedure.

Without a well executed layout, all subsequent operations for either web or sheet fed printing may spell disaster.

Stripping

Next to the layout man, the stripper is essential to the offset printer. In discussing this operation let us not be confused with the term Stripping as it applies to the photo-engraver or to the burlesque tease act. Offset stripping is important and varies with the many kinds of jobs at hand.

In general, the operation may be divided into two classes; Black and White and Color stripping.

With continued improvement photographic films are being utilized to a greater extent than are the photographic glass plates, or the antiquated wet Plate process, which in the main has been discarded in offset.

In addition to the photographic films, the stripper works with masking paper, sheet acetate or Vinyl plastics and plate glass. He also has occasion to use metallic foils, various adhesives, tapes and opaqueing materials.

Of the several kinds of films used we can list these: Standard weight, Thin Base, Strip film and dimensionally stable Vinylite base film. These find an almost universal acceptance in black and white reproduction, and to an ever increasing extent in color work.

An expanded knowledge of the physical properties of the photographic materials and their reactions under certain conditions offiers the offset printer many advantages in the increased production of his printing plates and facilities.

It may be well to review some of the features provided by the photographic films. In general, films have an anti-curl backing of gelatine which also contains an anti-halation pigmentation, in addition to the light sensitive emulsion on the film's face side.

With these types of films it is possible to perform certain operations on the back side of the film without damaging the image bearing emulsion on the face side of the film, such as ruling, opaqueing, air brushing, etc.

Films are easily cut with shears, razor blades, sharp knives or by scribing with a pointed needle. They are light weight and are easily handled and manipulated with few exceptions.

Stripper's Tools

The stripper's tools may include the following:

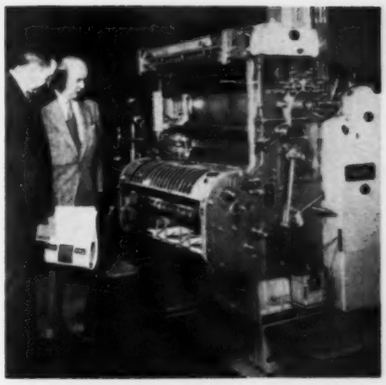
A. 24 in. straight edge, 48 in. straight edge (both steel with bevelled edges); T square, and an engineer's drafting machine fastened to the stripping table;
B. Carpenter's steel square, one each 60 deg. and one 45 deg. triangle;
C. Set of mechanical drawing instruments; assortment of plastic French curves;
D. 24 in. steel ruler with graduation markings from ¼ in. to 1/64 in.;
E. Assortment of crow quill drawing pens; some 6H and HB pencils; some red sable artist's and lettering water color brushes;
F. Powerful reading glass, linen tester or adjustable magnifier;
G. Ample supply of industrial razor blades; sharp stripping knives and etcher's needles;
H. Supply of self adhesive Scotch tapes (red, black and transparent); paper backed masking tape and suitable dispensing device;
I. Available supply of roll or sheet clear acetate plastic film; an assortment of film halftone screens of various tonal values and tint percentages;
J. Adequate supply India ink, water proof plastic ink, red and/or black opaque (liquid) water solvent;
K. Artist's tracing paper; matte finish acetate film; thin cellophane (transparent and colored varieties red, green and yellow) rolls;
L. Supply of metallic foil, rolls or sheets;
M. Absorbent cotton and cheese cloth;
N. Easily accessible supply standard sized sheets of masking papers, golden rod or cardinal red;
O. Cool topped stripping table with fluorescent lighting;
P. Portable easel or copy holding device;
Q. Adhesives: Rubber cement; Petrolatum; strip film solution; liquid glue, casein glue and plastic cement.
R. Squeegee; assortment of cut blotters;
S. Arm board or arm rest.

This imposing list of tools and materials is indicative of the many variations in offset stripping and suggests the extent of experience the stripper must acquire.

Nature of Stripping

To the casual observer, stripping is child's play. It is sometimes classed with the cutting of paper dolls. In reality, stripping is an important function and requires extremes in neatness, cleanliness, accuracy and speed in addition to a keen sense of precision.

Distance No Barrier—Six hundred miles to school and back is the distance traveled by B. J. Barton, Las Vegas, Nev., who attends American Type Founders' weekly night class in Los Angeles. The school is conducted for the training of pressmen in the operation of the Little Giant cylinder press. Barton motocycles the 600 mile round trip at an average of 60 mi. per hr. He is associated with Brimmie's Print Shop in Las Vegas. He and his motorcycle are shown above alongside the Little Giant press on which he receives instruction.



Chicago Installation — The Sheldon Printing Corp., Chicago, recently completed installation of its second Miehle No. 29 offset press. At the press, from left to right, are H. S. Bowles, President of the Sheldon firm, and W. J. McWilliams, Miehle's Chicago Representative. Bowles is also President of the Graphic Arts Assoc. of Illinois.

Once the necessary attributes of the stripper are acquired, the work itself becomes a simple operation, which accounts for the misconception that stripping is child's play.

Specialization of the stripping operation sets the standards by which the two main classifications are identified, namely black and white strippers and color strippers. The most important difference between the two classes is that a greater degree of care and caution must be exercised by the color stripper than is required of the stripper of black and white material.

The work performed in both classifications is quite the same or similar with this exception, that the black and white stripper is concerned with the production of single individual flats, while the color stripper must produce separate flats in close register, one for each color to be printed.

Workmen in each classification must be trained in the production of and stripping for both kinds of printing plates, surface image and deep-etch. Like all other operators in offset, they must know how to read and translate tone values in terms of halftone dots and percentages.

Job Classifications

Technically, stripping procedures vary in relation to the ends to be served in the production of printing plates. However, in reality, the determining factor governing the layout and stripping operation is the ultimate finished job.

Subsequent discussions will deal with stripping for the different kinds of job classifications *i.e.*, single impressions, step and repeat, photocomposed, multiple prints, line, halftone and combination requirements, in both black and white and in color.

(To Be Continued)

Screen Process Printing Called Mitography

SILK screen process printing is called *Mitography* in the book so titled and written by Albert Kosloff, Chicago educator. The word Mitography is coined from the Greek mitos meaning threads or fibers, and graphein meaning to write. Kosloff explained that the term screen process printing while describing the process and industry accurately has often proved confusing. He said he used the term mitography to describe the process because it consists of one word, is comprehensive and conveys the complete meaning. Kosloff defines mitography as a method of forcing ink, usually with a squeegee, through the design or open parts of a screen onto stock placed under the screen.

BOOKS

Typographic Planning for Typewriter Composition

INFORMATION on the production of cold type composition used in producing booklets, forms, bulletins and other printed material can be found in the recently issued booklet titled *Typographic Planning for Typewriter Composition*. Published by International Business Machines Corp., the 28 page manual is designed to assist in transforming printing requirements to IBM Electric Executive Typewriter specifications and to define the terminology of printing and typography as it applies to typewriter composition.

The relation between inches and the pica and point system of measuring is explained and illustrated in the booklet by the use of inch-pica scales printed on the edge of the page. Line spacing and leading, controlled on the IBM machine by ratchets, are discussed and a ratchet chart shows their use with 10, 11 and 12 pt. type.

Instructions are given for determining type sizes, and reduced and enlarged copy is illustrated. Reduction charts are provided for six of the type faces available on the IBM Electric Executive Typewriter. A glossary of typographic terms and a brief history of type families complete the booklet.

The text of Typographic Planning for Typewriter Composition was typed in IBM Bold Face No. 1 and the booklet was printed by offset. It is available on request from the Dept. of Information, International Business Machines Corp., 590 Madison Ave., New York 22, N. Y.

Mitography

AUTHOR Albert Kosloff has prepared an explanation of the methods and steps involved in silk screen process printing in his book titled *Mitography—The Art and Craft of Screen Process Printing*. The 144 page text has been written for use by Graphic Arts students as well as a reference source for screen process printers.

The term Mitography is used by Kosloff to represent the silk screen process because, he says, it conveys the complete meaning of the process in one word. Other terms derived from the word Mitography and dealt with in the text are mitographic printing plates, photomitography and photomitographic-film printing plates.

Coverage of the text ranges from preparation of hand made equipment and use of machines to information on inks, screen fabrics, drying and imprinting on various surfaces and materials. Other subjects discussed in the book's 13 chapters are knife-cut-film printing plates, positives for photomitography, the washout printing plate and the blockout mitographic plate. Numerous illustrations accompany the text.

The final chapter deals with development and organization of shops, routing of work, services offered and mechanization. The complete history of mitography is also given.

Mitography—by Albert Kosloff. Book consists of 144 pages; size, $6\frac{1}{4}$ in. by $9\frac{1}{2}$ in.; dark green cloth cover with yellow silk screened lettering. May be ordered from Bruce Publishing Co., 400 N. Broadway, Milwaukee, Wis. Price, $3.25 per copy.

Goodyear Distributor

The Hill Rubber Co., Chicago, has been named distributor of Goodyear Tire & Rubber Co.'s Velvatone offset blanket, according to an announcement by E. R. Coate, Manager of Printers' Supplies Sales Dept. for Goodyear.

Named Hammond Dealer

George R. Keller, Inc., has announced that it has been named authorized dealer for Hammond Machinery Builders. The Keller firm is located at 1228 Mt. Olivet Rd., N. E., Washington 2, D. C. Other Keller offices are in Baltimore, Md., and Charlotte, N. C.

Trolley Conveyor

Eliminates floor conveyor side belts and hand trucking and saves valuable floor space in mailing room.

By BILL CODDINGTON*

**Mechanical Supt., Des Moines (Ia.)* Register *and* Tribune

AN overhead newspaper continuous conveyor system has been in operation in the mailing room of the Des Moines (Ia.) *Register* and *Tribune* since October 1. Its use has brought about the elimination of floor conveyor side belts, has done away with the necessity for hand trucking papers and has meant the saving of valuable floor space.

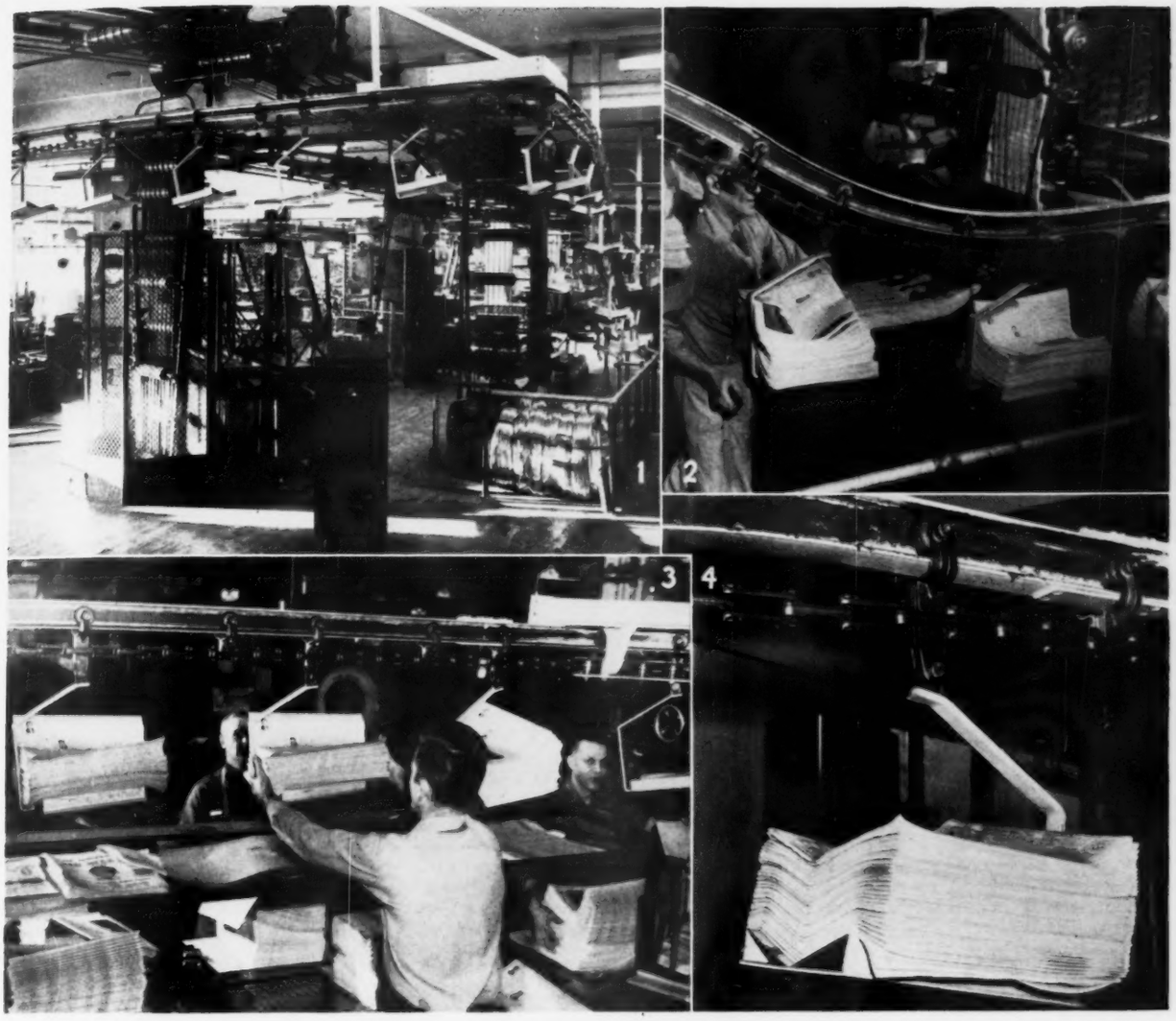
Papers from the press are delivered to the mailing room in the usual way by Cutler-Hammer conveyors. Mailers take papers, usually in lifts of 25 or 50 papers, from the C-H conveyor apron and place them on the buckets of the continuously circulating trolley conveyor which then delivers them to the bundlers in other parts of the room.

The system was laid out by Joe Menard, Mailing Room Supt. and was installed under the direction of Herman Fesenmeyer, Maintenance Supt. At the moment, it appears that such installation would only have a practical value in plants operating two or more presses.

The old floor conveyor system was built with two side belts, one on either side of the main belt. The overhead system does away with these and takes care of overflow papers on the 134 carriers or buckets as the mailers call them.

These buckets move along an elevated chain cable, 340 ft. long, which can be tightened when necessary with minimum effort. There are 134 buckets in the entire system, spaced 31 in. apart.

Speed of the trolley conveyor which travels via I beam is controlled by a Reeves variable speed drive at a speed which enables the mailers to load and unload with facility. The motor drive is 2 h.p. Approx. 4 min. are required for any bucket to complete one revolution



1.—One section of the Mailing Room is dominated by Cutler-Hammer Conveyors which bring papers from pressroom below, but the new overhead trolley conveyor can be seen readily. The mailers take loose bundles of papers in lifts of 50 from the conveyor table and place them on the continuously moving overhead trolley conveyor buckets. At the front of this picture the trolley conveyor winds around the C-H Conveyors in an elevated position. But the trolley conveyor buckets dip to convenient working height when they pass the C-H Conveyor delivery table. After the buckets have been loaded, they again angle upwardly and continue to ride the circuit until they are needed at the wire (bundle) tying machines, where they again dip to convenient mailer working height.

2.—Here a mailer is loading one of the overhead trolley conveyor buckets with a lift of papers taken from one of the Cutler-Hammer Conveyor tables (at rear) which reach the mailing room from the pressroom below at press speed. The *Register* and *Tribune* presses are operated at 42,000 paper per hr.

3.—In this picture, one of the mailers is removing a lift of papers from one of the buckets as it moves past the tying machine which is just to the right. He counts the papers for each bundle which he places on the wrapper on the rolling slat conveyor below. By the time the bundle reaches the wire tying machine at right (not shown) the top wrapper has been placed in position and is all ready to receive one or two wraps of wire, according to bundle weight. Tied papers then go down a chute to the shipping platform where they are loaded into road trucks.

4.—Close-up view of one of the continuously moving overhead trolley conveyors carrying newspapers positioned crosswise on the bucket. It was learned by experience that the heavier Sunday papers ride better crosswise. The thinner daily papers, however, are loaded lengthwise of the bucket. In any event, heavy or light papers, the mailers load or unload the lifts with equal facility.

of the system from starting point.

At the time of writing this story, the overhead conveyor has not been tied in with the Sheridan section stuffing machines. If the North system for Sunday paper use only is installed it is expected that the stuffing machine at that end of the mailing room will be tied in.

Our experience with the new system indicated that the I beam track should be lowered about 8 in. so the buckets in turn will be that much lower where they pass the tying table and center belt takeoff points. Accordingly, we lowered the I beam. This makes it easier for mailer manual handling operations.

By using the overhead system, the output of three or more presses can be routed past two tying machines. This insures a continuous flow of newspapers to waiting trucks at the loading dock. If a press breaks down, the papers on the buckets are removed as they go past the tying machines without a break in the tying operation.

Papers can be placed on the buckets from any operating press conveyor in the system. They continue to ride until such time as they are needed. If not needed during the regular press run, they are removed to wind up the operation.

The overhead conveyor system has been used for some time by publishers of magazines, notably Meredith Pub. Co., Des Moines, and Crowell-Collier Pub. Co., Springfield, O. This, however, in the opinion of *Register* and *Tribune* officials, is the first time the system has been used in a newspaper plant.

Makeready

Considered for Letterpress, Offset and Gravure by Research and Engineering Council — Need for standards voiced by majority.

THE two-day Makeready meeting of the Research and Engineering Council, Palmer House, Chicago, drew an attendance of approx. 490 Graphic Arts executives on December 4 and 5. Interest in the subject was shown by the number attending as well as the fact that 100 executives from non-member plants participated. The program was intensive—there just wasn't time enough for complete consideration of an involved subject. The establishment of makeready procedures in all three printing processes, particularly in the letterpress branch, was almost unanimously agreed to by leaders in the industry.

At the opening session on Thursday, December 4, President Edward H. Triebe said that the joining together of the various industry groups to discuss their problems and define basic requirements in terms that could be understood and appreciated by all, has been largely neglected. He said the Research and Engineering Council now provides the acceptable means for bringing these groups together in order to develop orderly definition of objectives for solution.

Eaton is Keynoter

General Mgr. Joseph A. Eaton, C. T. Dearing Printing Co., Louisville, Ky., presented a splendid address regarding Makeready in Letterpress, Offset and Gravure. He defined the problems and referred to industry's need for the establishment of standards. (Editor's Note: See accompanying pages this issue for major report of Eaton's address.)

Need for Engineering Analysis

Dr. Robert H. Roy, Professor of Industrial Engineering, Johns Hopkins University, Baltimore, outlined the need for making an operation analysis of the entire makeready cycle. He compared the makeready operation to the setup operation in other industries as the cycle during which the tool is in preparation preliminary to actual production. His schedule of makeready operations follows: (1) Handling of paper; (2) Form and its position; (3) Color and press inking systems, and (4) Impression. He discussed each in an orderly manner in detail.

Winkler Reports on Continental Makeready Research

J. Homer Winkler, Secretary of the R&E Council, presented a report on research activities in Europe, England and Sweden. Some of the men who have done work in technical research problems in physical and chemical aspects of ink drying and in the physics of letterpress printing were mentioned. One of these was R.G.W. Croney of PATRA in England. The contribution of Gosta Carlsson and Lennart Pihl of Sweden's Graphic Arts Research Laboratory was discussed. The paper, *Printing Pressure*, by Victor Letouzey of Paris, was also discussed briefly. Two papers by J. F. Monroy, Graphic Arts Research Institute, Amsterdam, entitled: *Use of Limit Gauges in Premakeready* and *Determination of Ruling Distance for Halftone Blocks*, were discussed. Winkler described briefly the manuscript prepared by W. P. Jaspert, Sheffield, Eng., on *Progress in Makeready*. A second original article by Mr. Letouzey, *Makeready Origins and Prevention*, contains new terms for the elements involved in letterpress impression. Through the courtesy of A. S. Wentworth, Manager, Printing and Publications Div., Westinghouse Electric Corp., the studies of Dr. Ernst Christen of Basel, Switzerland, are made available in the book, *The Form in Letterpress*. The foreign research laboratories, concluded Winkler, have developed methods of testing and measuring that should be used in this country.

Industry in Need of Makeready Standards— Don't Ask Pressmen to Carry Makeready Load

NO pressman, regardless of his skill and effort, can be expected to carry the makeready load associated with each printing process, declared Joseph A. Eaton, General Mgr., C. T. Dearing Printing Co., Louisville, Ky. Serving as keynoter at the opening session of the Research and Engineering Council's Makeready Conference, Eaton defined the term "makeready" to include all work done in advance of the press run. He called upon each part of the printing industry to be makeready conscious in its preparatory work rather than depending upon the pressman to employ makeready secrets and special skills.

The speaker explained some of the general weaknesses of the printing industry which affect the proper approach to makeready. He said the crafts are perpetuated by systems of apprenticeship necessitating cooperation by management to see that men are well trained. Too many independent printing plants to reach for any program was given as another weakness.

Little Control Over Engineering

Continuing, he added: "Printing is probably the only business with little control over its engineering. This control is in the hands of artists, agency men, customers and publishers." Mr. Eaton named cost as such an important factor in printing that it outbalances many factors that should have more weight. The final weakness, according to the speaker, is competition which he described as so severe that cooperation between printers is made difficult. For eliminating these weaknesses, Eaton advocated a united effort among the entire industry.

The Proper Approach

He counseled that the best approach to makeready was that of trying to eliminate it at the press. Changeovers, washups, press setups, adjustments for kind of paper and consideration of ink to be run were listed by Eaton as elements of makeready at the press which are always present in all three major printing processes.

"If we eliminate all these items," he added, "we find that offset and gravure have a big edge on letterpress when it comes to makeready.

Gravure Makeready

"Gravure is probably the simplest process to makeready. Inasmuch as the cylinders change with each job, he must have made sure that the cylinder shafts and the press bearings are not worn because any play at this point will cause trouble. If maintenance has been effective, there will be no trouble here.

"Next, the gravure man must set his doctor blade. The blade must have been properly ground in advance of use; it must be carefully set at the right angle with proper tension so that the cylinder wipes clean, and without excessive wear on the cylinder. This is a delicate setting and there is room for much discussion about doctor blade action, speed, distance from impression roller, angle, etc.

"Next, the pressman pushes a button

Officers of the Research and Engineering Council Attending December Make-ready Meeting in Chicago—(Left to right): Secretary J. Homer Winkler, Technical Advisor, Battelle Memorial Institute, Columbus, O.; Vice President, John H. Davis, jr., Production Mgr., National Geographic Magazine Div., Judd & Detweiler, Inc., Washington, D. C.; President Edward J. Triebe, Vice President, Kingsport (Tenn.) Press; Vice President, Elliott Donnelley, Vice President, R. R. Donnelley & Sons Co., Chicago; Treasurer, Joseph Schwartz, President, Westcott & Thomson, Inc., Philadelphia.

and drops his rubber impression roller. He then starts his press and looks at his sheet. If the viscosity of his ink is too high the cylinder will print dry, that is, not to the full value of the cylinder. He must add solvent until he prints the full value. If the ink is not of sufficient viscosity, he must reduce the amount of solvent or his print will be mottled and work will bleed. Bleeding is sometimes called 'running whiskers.'

"Rotogravure cylinders run continuously in a bath of ink; there is no fountain setting, there is no packing cylinder —almost nothing to adjust but the doctor blade. Pressmen must watch this ink viscosity very carefully as the balance is delicate. He varies his shade of ink by adding extenders to weaken, or toners to intensify.

"On magazine, catalog or newspaper work, repeating at regular intervals on the same paper, much of this detail can be worked out in advance. On sheet gravure under wide variations of commercial printing, all conditions are made more severe. The quality makeready from day to day on a running form consists of changing doctor blades and watching ink, particularly with wide changes in atmospheric conditions.

"Basically, gravure is a tone process. It is not contrasty, and is at its worst at the white end of the scale. Type is screened, and fine-lined type or fine lines in work are inferior to letterpress. It is not as flexible color-wise as letterpress. These factors must be cared for in advance of the press run. The broad approach to makeready is important on these points.

Offset Makeready

"Offset pressmen, after observing the five common makeready steps, must vary as follows: Offset plates are grained after each run. This causes a variation in thickness. Usually the plate cylinder on an offset press is marked for its undercut from the bearers. The offset pressman must 'mike' his plate and pack under the plate so that the total thickness of plate and packing is equal to the undercut, thus making the work run at bearer height. The blanket cylinder must be packed under the blanket and should be overpacked between 0.002 in. and 0.004 in. in order to transfer properly.

"Pressmen must watch the image on the blanket and regulate their packing to get the proper detail. The work is delicate, packing must be uniform, and high or low spots on the plate and blanket cylinder must be leveled off. As a blanket wears, it needs attention for low spots or swelling and extreme care must be taken not to damage the blanket or the plate, as both are delicate. The impression cylinder does not have bearers and must be adjusted for position against the blanket. Usually a 0.002 in. squeeze is allowed for proper printing. There is also a water fountain to adjust. Offset depends on a battle between ink and water and the battle must always come out tied—neither side can win.

"The offset pressman must also be a bit of a chemist, adding etch to his water fountain to keep the plate clean. He must keep his blanket from getting sticky. If he stops for long, he must gum up his plate. He must set his rollers very carefully.

Many Things to Watch

"He has many things to watch and he must be very accurate in his corrective measures. If he fails anywhere along the line, his quality suffers quickly, his production falls off, and plates are easily damaged and have to be made over. If the moisture control in the pressroom or the paper varies much, the pressman must battle wrinkles and this can be disastrous. All of these conditions will increase makeready time after the run starts if the time is separated from the production run.

"Offset ink must be watched by Baumé testing for solids control and viscosity testing for rate of flow. Most inks require some adjusting when starting up a press form. In this respect it resembles gravure. Offset is not flexible for color; fountains can not be split.

"The process gives a light, clean print and it can also lay solids almost better than any process. It prints well on rough surfaced or art papers. It suffers from a lack of development capital for long-run magazine and catalog work. It is very good on short runs in the commercial field, but has allowed long-run magazine and catalog work to be captured by gravure and letterpress.

Engraving Control

"Having other people control engraving, however, makes makeready problems much more severe in letterpress. The progress in gravure and offset has been so great in the past 15 years that their hot breath on the neck of the letterpress printer has spurred him to develop his presses for speed, brought out advanced design, and heat-set inks. All this has been wonderful, but the problem of makeready has become more acute.

Flat-Bed Makeready

"Let us consider flat-bed press operations. The larger the bed, the more difficult it is to keep this press level. This fact, plus bronze bearings, will always make it necessary to make ready to cover press faults on this equipment. Next, comes the problem of cuts mounted on wood. This cannot be avoided for reasons of economy and convenience. The wood cuts will

Informal Discussion — (Left to right): Lennart O. Pihl, Research Supt., Graphic Arts Research Laboratories, Stockholm, Sweden; Joseph Chanko, General Mgr., Conde Nast Press, Greenwich, Conn.; Joseph A. Eaton, General Mgr., C. T. Dearing Printing Co., Louisville, Ky.

Among Those Attending Research and Engineering Council Meeting, Chicago, in December—(Left to right): John H. Davis, jr., Production Mgr., National Geographic Div., Judd & Detweiler, Inc., Washington, D. C.; Wade E. Griswold, Executive Director, Lithographic Technical Foundation, New York; Leonard Davis, Manager, Davis-Lisson, Ltd., Toronto (Ont.) Can.; Elliott Donnelley, Vice President, R. R. Donnelley & Sons Co., Chicago; Roswell E. Fisher, Director, Time-Life Laboratories, Springdale, Conn.

warp and twist all the time, affecting printing quality and register. This will cause extra makeready. As runs approach 50,000 impressions, type will wear badly. If type is alloyed to make it harder, type casting is affected and this affects makeready. The cost of plates make people stretch runs on type up to 75,000 impressions.

"One must, however, decide when, for quality reasons, you will go to electrotypes. Having taken this step, you no longer can afford to print on flat-bed presses. Much can be done in the composing room to see that type is kept type high and free from casting defects. Cuts can be type-highed mechanically or by underlaying. Press forms can be locked up and lined up at the same time in the composing room. Care can be taken to see that chases are not warped. You can go as far in advance of the press as you can save in pressroom makeready. If a flat-bed press costs five dollars an hour to operate and takes eight hours to make ready, that makeready cost $40. If pre-makeready effort in the composing room can save $10 in the composing room, it makes this an accounting job and a difficult job, too.

Rotary Press Makeready

"Well, here I am now at the rotary press, costing from $500 thousand to $700 thousand. You may think now that life is easier because you have so many advantages. Not so; this press costs to operate from $40 to $60 per hr. A 15 hr. makeready at $60 per hr. is a $900 makeready. Perhaps a 20-year-old press of the same capacity in plates takes 40 hrs. to make ready at $20 per hr. Here you have an $800 makeready. This is a win for the old press. When the two presses start up, the old one may print 4000 net copies per hr. for $20, in which case it is just as cheap as 12,000 net copies per hr. on the $60 press and you are still behind on makeready cost. It doesn't take long to find out that you need to do a better job, and you can still feel that hot breath on the back of your neck from the gravure boy."

Surface Isn't Scratched

Mr. Eaton outlined for those in attendance what the Dearing plant is trying to do in its makeready program. He remarked: "We feel that we have not scratched the surface of what can be done. There is much room for improvement in our plant. We don't believe it can be done by cracking the whip. It is purely educational."

Animatedly initiating makeready discussion at the Letterpress session of the R&EC meeting held in Chicago in December, over which he presided, Dwight L. Monaco gets off to a good start. Monaco is Asst. Vice Pres. and Director of Mfg., McGraw-Hill Pub. Co., New York.

Recommends Establishment of Makeready Standards

In conclusion, he advocated the establishment of standards for makeready agreeable to Research and Engineering Council members as well to the customer or publisher. He said that agreement must first come from among printers, taking the engravers' viewpoint into consideration. The publication of a report of the discussions and the establishment of an industry arbitration board to judge the disputes that arise were the final suggestions for such a program.

Letterpress Makeready Discussions

DWIGHT L. Monaco, Director of Manufacturing, McGraw Hill Pub. Co., New York, who served as chairman at the Thursday afternoon, December 4 session of the Letterpress group, at the Makeready Conference of the Research and Engineering Council, Chicago, said in his introductory remarks that he was an advocate of standardization of planning and mechanical performance in the Graphic Arts.

First speaker at the group meeting which attracted the major part of the entire registered conference personnel, was Ernest Schmatolla, Purchasing Agent and Technical Consultant of the Publishers Printing Co., New York, N. Y., who talked on *Preparation and Pre-makeready*. He stressed the idea of making thorough plans for required production work before any of it is started so as to avoid delays and consequent increased labor costs. While this is generally recognized in theory, he indicated it was not practiced as much as it might be. He said he was particularly interested in trying to induce suppliers to improve basic materials used in the Graphic Arts so that greater efficiency can be achieved at the production level in printing plants. To visualize his ideas, he used slides projected on the screen, showing faulty metal conformation used in machine composition and in electrotypes, and also showed magnified views of faulty paper. As slide after slide was projected, he suggested how researchers might be able to eliminate most of the defects, thus reducing the makeready problems of printers since every defect in material had to be compensated by extra work in makeready. He expressed gratification over the manifested interest in research on the part of the executives in attendance, and referred to the lack of interest in the subject 20 years ago when he became interested. Like other speakers, he voiced the hope that the program of research would be expanded in the letterpress branch of the Graphic Arts.

Two of the addresses during the afternoon referred to operation of printing presses. Fred W. Hoch, New York, President, Fred W. Hoch Associates, Inc., a consultant, spoke on *Makeready on Flatbed Presses* and Joseph Chanko, General Manager, The Conde Nast Press, Inc., Greenwich, Conn., talked on *Makeready on Rotary Presses*. Both speakers expressed views in line with the sentiment in favor of better pre-makeready planning and in standardization of practices and terminology in the industry.

B. L. Sites, Chief Research Engineer, Miehle Printing Press & Mfg. Co., Chicago, presented a paper on *An Improvement in the Method of Makeready for Letterpresses*, in which he gave his views concerning causes for poor printing performance. He attributed much of it to faulty synchronous travel between the surface of the printing plate and the impression receiving surface in a flatbed press.

"In the case of the flatbed press, synchronous travel will be attained when a point of the surface of the cylinder bearer, and a point on the surface of the printing form, moves through equal distances during the printing of the form," said Mr. Sites. "With this concept of what synchronous travel is, the next consideration follows: How can it be obtained? The direct answer is by means of packing, which is the only means available to the pressman. Herein lies the pitfall which has been set apparently for more than 50 years."

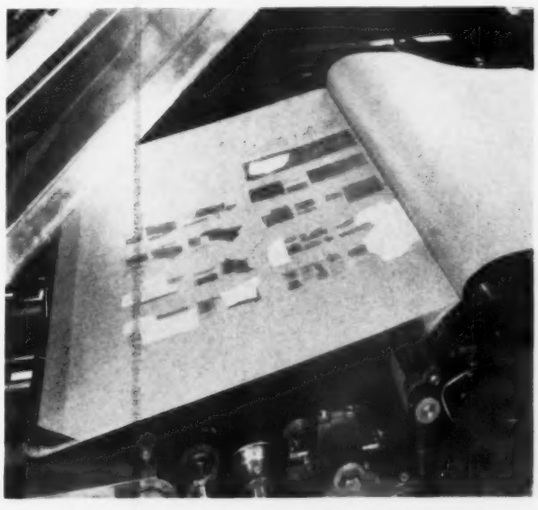
The speaker said he questioned the belief that synchronous travel is achieved "when printing pressure is distributed equally in respect to the cylinder bearer height, or in common parlance, 'the pitch-line.'

He continued: "During the past few years when press speeds have been increased there has been a growing amount of evidence which seemed to cast some doubt on the truth of the assumption that synchronous travel can be attained by splitting the printing pressure, that is, to put the plate surface 0.002 in. above the bed bearer and the impression receiving surface 0.002 in. above the impression cylinder bearer."

He referred to the practice "to pull down on the bearers" usually to an excessive amount, in order to assure sharp printing without slurs, as one evidence, and another in "the unexplained variation in image lengths under so-called normal printing conditions." It was these evidences that led the speaker to the decision to make tests on a full size two-color flatbed press to check the accuracy of the assumption that true synchronous travel is attained with the split-pressure-method of makeready. He described the tests in detail and reported that as a result, he concluded that "facts indicated that it was possible to obtain true synchronous travel by altering the packing on the impression cylinders in such a manner so as to change the location of the printing line from the traditional 'pitch' or 'bearer height' line to one which was of the order of 0.015 in. removed therefrom, and in the direction which placed the impression receiving surface below the cylinder bearer height."

Charles W. Pitkin, Director of Mfg., Doubleday & Co., New York, in his talk on *Resilient Plates* referred to the use of rubber plates in aniline printing which he used in 32 page forms for book printing, and also in the printing of business forms. He said plates must be accurate within a tolerance of 0.0005 in. and can be used in printing halftones up to 85 line screen. During the question period he was asked if they could be used on flatbed presses. His answer was in the affirmative.

J. Homer Winkler, Battelle Institute, Columbus, O., presided at the evening session of the Letterpress conference. The theme was "Mechanical Makeready Methods." Robert T. Rice, Pre-press Consultant, Vandercook Research, Inc., Chicago, described methods of precision form preparation represented by the Vandercook machines and devices (see separate summary of Rice's address this issue). Stanton C. Saunders, Director of Sales, C. B. Cottrell & Sons Co., Westerly, R. I., spoke on *The Original Plate Treatment Process*; L. W. Claybourn, President, L. W. Claybourn, Inc., Chicago, described *The Claybourn Method of Plate Treatment*. L. Thomas Taylor, Pressroom Supt., Sheet-fed Press Equipment, The McCall Corporation, Dayton, O., talked on the *Bishop-Stansell Method of Plate Treatment*. A spirited discussion concerning the merits of some of the methods followed.



The Vandercook Minimum Cylinder Press Makeready Method was discussed at the December Makeready Conference of the Research and Engineering Council by Robert T. Rice, Pre-Press Consultant, Vandercook Research, Inc. Rice also discussed Vandercook's Precision Form Preparation Method, the Makeup Gauge, and Chases of suitable stability to maintain precision in the form. The Minimum Makeready Method is predicated upon forms prepared according to the Vandercook Pre-Press System. The Minimum Makeready Method is not effective in the case of forms containing wood mounted plates.

It was explained that a sheet of carbon paper is inserted in the cylinder packing with the carbon face against the fifth hanger (0.006 in. thick tympan sheets). A light impression of the form produces a carbon impression of the form on the top of the fifth hanger. Weak spots due to press bear-off and form inaccuracies are spotted with 0.001 in. tissue. When press and form are in good condition, tissue spotting of not over 0.002 in. is usually sufficient.

Form Preparation, Minimum Makeready by Vandercook

AT THE Research and Engineering Council Makeready meeting, Robert T. Rice of Vandercook Research, Inc., delivered a carefully prepared paper entitled *Vandercook Process of Precision Form Preparation and Vandercook Minimum Makeready Method*. The meeting was held at Palmer House, Chicago, December 4 and 5.

The precision preparation of a form, Rice stated, is equally important to the letterpress printer who prints from the forms direct and to firms which prepare forms for molding for mechanical plate reproduction. For this purpose, proper instruments and tools are available. Said Mr. Rice: "The industry must work to tolerances that will permit a form which is made up of a large number of pieces to lie perfectly flat on the bed of the press when under lockup pressure and, further, must work to tolerances that will permit a form to squeeze up to an accurate predetermined position when under lockup pressure."

The speaker continued: "We determined that printing heights must be held within 0.0005 in. to be effective in reducing makeready time." He described Vandercook's search in particular for stable printing plate mounting materials, most of which failed to meet full requirements. Finally, "It was our conclusion type metal—linotype, Monotype or stereotype—possesses most of the qualities necessary for a good blocking material." (Ed.'s Note: See October 1951 and December 1952 issues of *Printing Equipment Engineer* for descriptions of casting the base and bonding the plate to it.

Mr. Rice described the Vandercook Makeup Gauge by means of which similarly dimensioned pages can be made up to precise size when locked in the form before the page elements are made up in the form.

Importance of Rigid Chases

Mr. Rice discussed as a part of the Vandercook system the use of sturdy and rigid chases which will not deflect under form lockup pressure. He explained that there are two kinds of pressure used in lockup. One is that which is required to transport the form. The other is that which is required to permit a form to lie perfectly flat and in perfect position on the press bed.

"The steel stock of a chase," he said, "should be large enough in cross-section to withstand the pressure of transportation lockup without bowing and without distorting the justification and position of the form. The stock of the commonly used chase is only $\frac{5}{8}$ in. high and varies in width from $\frac{3}{4}$ in. to $1\frac{1}{2}$ in. Our experience has demonstrated that any chase with a free length of over 28 in. should be made of stock $\frac{3}{4}$ in. high and 2 in. wide

Opening Session Speakers' Panel, Research and Engineering Council, Makeready Meeting, Palmer House, Chicago, December 4 and 5.—(Left to right): Gilbert R. Middleton, Technical Mgr., Tillotsons, Ltd., Bolton, Lancashire, Eng.; Dwight L. Monaco, Director of Mfg., McGraw-Hill Pub. Co., New York; Prof. Robert H. Roy, Industrial Engineering, Johns Hopkins University, Baltimore, Md.; speaking, Joseph A. Eaton, General Mgr., C. T. Dearing Printing Co., Louisville, Ky.; President of the Council and Chairman of this meeting, Edward J. Triebe, Vice President, Kingsport (Tenn.) Press; R. G. W. Croney, The Printing, Packaging and Allied Trades Research Assoc., Leatherhead, Surrey, England; Joseph Chanko, General Mgr., The Conde Nast Press, Greenwich, Conn. J. Homer Winkler, Technical Advisor, Battelle Institute, Columbus, O., was ill and had to retire to his room at the Palmer House. His paper, however, was read at the meeting.

if it is to retain accurate adjustment of the form.

"These strong precision chases which we prescribe provide enough resistance to lockup pressure to prevent distortion of justification in the form during lockup and transportation. The cases are provided with a ½ in. tie-bar across the short dimension and provide added safety in transporting the form. Our opinion is that one cross-bar is sufficient in any chase.

"Our recommendation is that deadlines, paperlines and centerlines be scribed on each chase so that the lockup man has a positive point from which to position his imposed form. With makeup standards and standardized chase equipment, all details of a job can be accurately planned before any job is started through the shop. The exact marginal material of each page and exact position of the form from the paperline on the chase can be calculated and specified.

"Consequently, lockup becomes a simple, fast operation. The pages are placed on the imposing surface in correct imposition order. Then the chase is placed and a specified amount of material placed inside the chase at the gripper edge to correctly position the form in relation to the paperline marked on the chase. All that remains for the lockup man to do is to place the required lockup furniture and quoins, then tighten the quoins.

Pressman's Skill Compensates Faulty Equipment

"During our investigation relating to makeready, we found some conditions existing in the pressroom which contributed to the time wasted on non-essential operations.

"Our surveys revealed such things as presses running year in and year out without so much as cursory inspection and adjustment. We found pressmen correcting the same faults in form after form due to defects in the presses. We found beds badly dented from carelessly dropped tools, and cylinders dented from constant stabbing of the packings. Around each of these dents, there were craters rising as much as 0.004 in. above the surface. Worn and damaged bearers and improper setting of cylinders to the bed bearers are common faults. Also, accidents have often added permanent deflection to some confined area of a bed or cylinder.

Press Test Blocks

"Most of these defects can be corrected by proper maintenance, periodic inspection and adjustment. Our way of overcoming impression defects is the application of the Vandercook Test Block method of press correction. The procedure involves proper setting of impression cylinders to bearers, elimination of defects in beds and cylinders caused by dent craters, and the placing of an overlay against the cylinder to correct permanent deflection.

"We furnish precision test blocks for use in developing the correction overlay in the underpacking. This inspection and correction procedure should be performed at least every six months if impression accuracy within the desired tolerance of 0.0005 in. is to be maintained.

Printing Pressure Very Sensitive

"Printing pressure is a very sensitive thing. No one has yet clearly stated what printing pressure is. The amount of impression cannot be expressed in pounds per square inch or pounds per lineal inch. The pressure requirement varies with the slightest change in the nature of the ink, the nature of the paper, the solidity or openness of the image, the compressibility or elasticity of the packing. The work required to produce the proper transfer of the image depends primarily upon the accuracy attained in the form. Therefore, everything related to developing the proper pressure must be precise.

"There are other factors materially affecting the transfer of the ink to the paper to produce fine quality printing. One is bear-off. We know by our experience that the element of pressure adjustment because of bear-off fluctuates within definite limits according to the condition of the press and the arrangement of the elements in the form.

"We found that our accurate metal mounted plates are extremely sensitive to impression. Since we are working to close tolerances in impression limits, we seldom have to place more than 0.002 in. of tissue spotting in the press packing to compensate for impression differences. We have found that for most jobs this spotting exceeds 0.002 in. only when the bear-off factor, because of press deflection, is excessive.

Minimum Makeready Method

"We have proved that the finest quality printing can be produced with only this tissue spotting in the packing, and that the use of hand-cut or mechanical overlays is not essential to the Vandercook Minimum Makeready Method.

"Some of the spotting compensation for both bear-off and image transfer can be reduced by varying the height of certain types of plates. When we first started out, we tried bumping permanent makeready into the mounted plates by interlaying when mounting. We found that this method was not as effective as varying the height of solid plates or halftones according to their area. However, we never exceed 0.920 in. even in the larger plates because heights of over 0.920 in. in these solidly mounted plates will cause a press deflection which increases the bear-off. Also, excessive variation of heights in the form causes bridging which prevents proper setting of the form rollers to produce proper inking of the form.

"A hard packing made up of all 0.006 in. manila tympan paper is used. Five of these sheets, including the drawsheet, constitute the upper packing, and the balance is put in the lower or permanent underpacking. Then, tissue is used to bring the packing to the correct thickness for the paper stock to be run so that impression is adjusted for the light areas of the form.

"A sheet of lightweight carbon paper, large enough to cover the printing area of the form, is placed face down on the fifth sheet of the manila packing. This puts it approximately 0.024 in. down in the packing. About 10 sheets of the stock to be printed are then run through to get a carbon impression of the form on the fifth manila. It is not necessary to have the press inked up for this operation. The packing is then opened up and the carbon removed. This carbon impression will show up any differences due to height variations or bear-off. Since he knows he is working within definite tolerance limitations, the pressman can quickly spot up the light areas with tissue. He can then close up his packing, proceed to adjust his fountain and rollers, and run through enough sheets to be sure that the inking is correct for the run. After this is done, a study of the inked impression will reveal whether any additional spotting in the packing is necessary.

Conclusion

"Our experience in printing fine halftone work by this minimum method of makeready has proved practical and efficient.

"By means of measurement control, we can attain accuracy in the material which constitutes a press form. Our method of mounting plates on a stable metal base permits tolerances in printing heights to be maintained. The Vandercook Makeup Gauge gives us micrometer control over the makeup of page units, and we can hold hairline accuracy by using strong precision chases. Our test block method of press correction is effective in preserving good impression conditions at the press.

"Since we can eliminate the causes of wasted time in makeready, and since the precision forms can be put on the press in exact position, the pressman can proceed immediately with what we consider the legitimate functions of makeready. The time saved in getting the press rolling is tremendous. It is all a result of introducing the factor of precision into the various pre-press operations."

"Makeready Begins With First Click of the Camera Shutter"

THE Gravure Session which was held concurrently with the Letterpress and Offset sessions at the Makeready Meeting of the Research & Engineering Council, Chicago, early in December, was presided over by E. Thomas McBreen, Technical Director, J. Walter Thompson Co., Chicago. With respect to the term "Makeready", it was the consensus of opinion in the gravure cylinder and platemaking process that makeready commences with the first click of the camera shutter. The reason is that the final printing element (the cylinder or plate) is inflexible with respect to corrective operations. At adjournment time, those present seemed to feel that they had thoroughly discussed all of their problems in relation to makeready operation and it was decided not to hold an evening meeting.

Chairman McBreen, at the opening of the meeting, introduced the panel members as follows: Larry Kussow, Senior Product Engineer, Paper Division, Kimberly-Clark Corp., Chicago; Frank V. Johnson, In-Tag Division, Interchemical Corp., Chicago; Fred Hacker (substituting for Elmer Stacy), Klingrose Gravure Div., American Type Founders, Brooklyn; Myron R. Homiak, Intaglio Service Corp., Chicago; and Harold R. Maas, Rotogravure Department Supt., Chicago *Tribune*.

Chairman McBreen led off with statements pertaining to the intent and purpose of the meeting. He said that makeready in publication work can't be turned over lightly. In commercial gravure printing, craftsmen must be precise. In the carton industry, with respect to makeready, dies cannot be changed readily.

While rotogravure printing is a mass production and must be thought of first in that term, every effort is made by those producing printing cylinders to obtain color fidelity. In publication work he mentioned that the Ballard shell (0.006 in.) is used generally. Cylinders must be round and must be maintained of a constant diameter. If these two particulars are not observed, the cylinders will cause a loss of press time. In handling carbon tissue, particularly in publication work, pages are laid down according to page layouts and charts.

After the cylinder has been placed in the press, makeready operations are limited with respect to changing the cylinder in any way—but the cylinder can be burnished in spots to reduce tones or it can be removed from the press and re-etched to strengthen tones. Any correction in inks to match the original art work is passed on to the pressroom.

Difference in Copper Coating

In discussing the subject *Platemaking in Relation to Makeready*, Myron Homiak said that "Makeready is all work done in advance of the press run." As contrasted with the publication field, however, the Ballard process generally is not used for commercial work. In the commercial field a different copper coating method for the printing cylinders is employed. There are many diameters and widths of rolls used in the commercial field which also are not mounted on fixed shafts. There should be copper coating to a thickness of 0.015 in. and up. Cylinder diameters range from 8 in. up to 30 in. diameter. The design is laid down on the copper printing surface in accordance with the cylinder keyway. As mentioned by Mr. McBreen, Homiak stated that re-etching and burnishing are employed to correct cylinder designs, and in some cases small holes are filled up before proceeding with the printing operation. If burrs occur any place on the cylinder in the chrome plating, the burrs will cut

Letterpress Session Speakers' Panel at Chicago R&E Council Makeready meeting in December—(Left to right): Fred W. Hoch, Fred W. Hoch Associates, Inc., New York; Charles W. Pitkin, Director of Mfg., Doubleday & Co., Inc., New York; speaking, Ben Sites, Chief Research Engineer, Miehle Printing Press & Mfg. Co.; Chairman, Dwight L. Monaco, Asst. Director of Mfg., McGraw-Hill Pub. Co., New York; Ernest Schmatolla, Purchasing Agt. and Technical Consultant, Publishers Printing Co., New York; Joseph Chanko General Mgr., The Conde Nast Press, Greenwich, Conn.

Speakers' Panel at Gravure Session of R&E Council Meeting, Chicago in December—From left to right, they are: Larry Kussow, Sr., Product Engineer, Paper Div., Kimberly-Clark Corp., Chicago; speaking, Frank V. Johnson, In-Tag Div., Interchemical Corporation, Chicago; Fred Hacker, Vice President, Klingrose Gravure Div., ATF., Brooklyn, N. Y., substituting for Elmer Stacy of the same company, Stacy being unable to be present; Chairman of the meeting E. Thomas McBreen, Technical Director, J. Walter Thompson Co., Chicago; Myron Homiak, Intaglio Service Corp., Chicago; Harold R. Maas, Superintendent, Rotogravure Dept., Chicago *Tribune*.

the doctor blade or vice versa, the cylinders will be scratched.

As contrasted with letterpress printing, Mr. Homiak said the equivalent of bumping-up operations as in letterpress printing can be done to a certain extent in gravure. That is, the solids can be made to print properly during the photomechanical operation. Usually type matter is produced with 150 line screen for sharpness; pictures are usually produced in 120 line screen, and for gold printing an 80 line screen. He mentioned that *Fortune* magazine has used 300 line screen for type matter to avoid ragged edges on the type and to hold the type design without thickening. He said there were many actual cases today where chrome plated cylinders are put in the press and the production run is started immediately without further delay.

Gravure Proof Presses

Fred Hacker discussed *Proof Press Operation in Relation to Makeready*. He said that letterpress printers had always been provided with proof presses. Proof presses are now available for offset-lith printers to show proofs to customers, but the development of the gravure proof press is of fairly recent origin. Several makes are available. They can be used for checking register especially in color work and they are valuable in checking type matter, tones, color and also in furnishing customer proofs. The color proofs which have been OKd by the customer can be hung up in the pressroom so that the pressman can match the inks. However, he observed that it is necessary for the customer to have a full understanding of the limitations of the gravure reproduction process. Proofs can be taken either from copper or chrome plated cylinders on paper or foil-like material. He also said that some plants produce proofs only on Kromekote. The inks used in proofing are identical to those employed in the production run except they are formulated with a slower solvent for proof press use. In referring to the employment of color proofs in gravure printing, Hacker said the pressman is helped immeasureably if he has a proof standard to go by so he can avoid lack of impression in proper adjustment of the doctor blade and the like.

Gravure Inks

Frank V. Johnson talked on *Ink in Relation to Makeready*. One gathered from Mr. Johnson's address that gravure inks really are tailor-made because of varying conditions in each plant which he enumerated. The problems of the publication group and the specialty group are entirely different. Conditions change with respect to workability of ink with the press, the paper stock and the cylinders. Inks formulated in one plant won't run exactly the same in another plant. The factors affecting the workability of the ink being color, web or press speeds, the stock and the kind of press. The ingredients vary according to the press. The vehicle or binder varies with the pigment and there are many other factors.

Once established, certain etching procedures can be followed in the plant so as to maintain standards and eliminate some of the ink problems. The standard gravure screen and the Dultgen screen require different ink formulations.

Mr. Johnson stressed that ink alone cannot do the job entirely in gravure printing. Dirty fountains cause changes in color shades. Cleanliness is important around equipment from a safety standpoint.

Viscosity checks of the ink can be taken at different times throughout the press run to see that the ink is printing up to the established standard.

With respect to standard colors, Mr. Johnson said there are 20-odd factors which will affect color of gravure ink. In the publication field there are almost as many colors as there are plants.

One of Mr. Johnson's important statements was that doctor blades should be changed with each cylinder.

The distance between the doctor blade and the impression cylinder affects the drying properties of the ink. At slower press speeds inks must possess greater viscosity.

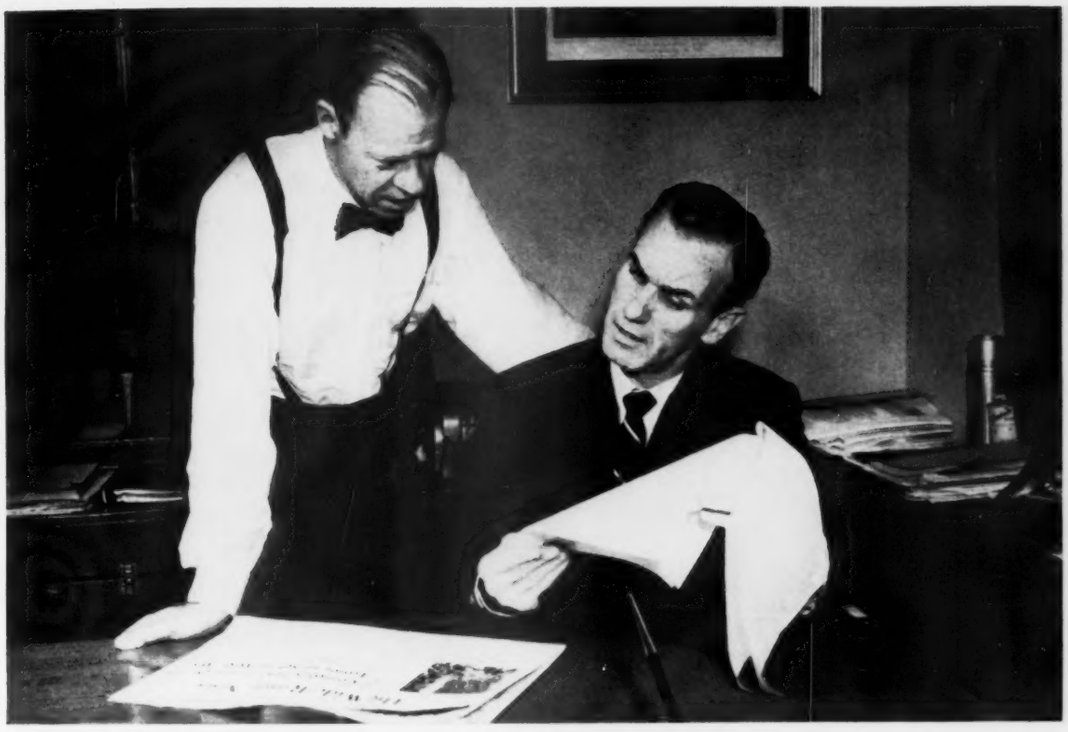
Paper in Relation to Makeready

Larry E. Kussow talked on *Paper in Relation to Makeready*. At the outset, Mr. Kussow observed that paper for the gravure process is no exception with respect to the paper having certain characteristics which are undesirable or which have not been duly considered for gravure printing. He said: "We must differentiate between rotogravure and sheet-fed gravure since the limitations of the two processes are not at all similar."

He mentioned that several types of paper currently are being printed upon by rotogravure. These are (1) Newsprint, (2) Supered book, and (3) Semi-coated book and coated book.

In the newsprint category the newsprint industry has settled on 32 lb. basis and 34 lb. basis for reasons other than the demands of rotogravure as a printing process. He said that newsprint, particularly in the 32 lb. weight is sepia and color cast is noticeably two-sided in surface smoothness and two-sided in absorbancy. The paper possesses softness and cushion which tends toward flexibility—whereas on the press, the newsprint possesses low tensile strength but retains a measure of stretch which also tends toward flexibility. However, the surface is coarse textured and is highly absorbent and is not conductive toward sharp definition of tones.

In the use of Supered book stock, the rotogravure printer runs into a sheet that is much brighter than newsprint and has a surface which is much less absorbent. The ink will tend to stay on the surface of the sheet which makes for sharp definition and contrast—but the engraver and the pressman have less flexibility because



"Ever see a newspaper publisher question lower typesetting costs?"

"I did! The boss couldn't believe we save so much time and money with our new Model 33 Linotype."

"As mechanical superintendent, I got a real treat telling the publisher how our new Model 33 Linotype is cutting costs.

"First of all, I showed him how we set practically all the big ad display lines on the '33'. Just about every news head comes from our Model 33, too, not to mention body matter and ad guts by the galley-full! The boss quickly got the picture: Model 33's wide 90-channel magazines give us more type of all sizes, from 5 point through condensed 42 point, right from the keyboard. We cut out costly waste motion by handing the Model 33 operator the whole job – text *and* display – instead of spreading it all over the shop.

"Then our publisher wanted to know about maintenance costs. So I explained how the keyboard swings out in a few seconds, making parts easy to get at, and how so many assemblies have been greatly simplified to reduce maintenance. Then I pointed out the new positive Electromatic Safety System that prevents matrix damage during distribution.

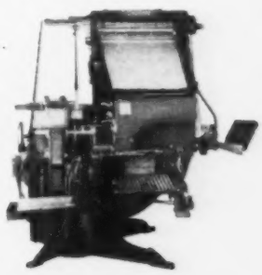
These are only a few of a hundred reasons why our Model 33 is a sweetheart for the machinist and operator . . . and a real money-maker for the boss.

"So now the publisher is as convinced as I am that it was a smart move, buying a Model 33. It adds up to bigger profits in *his* book, and the '33' sure makes it easy for us to beat deadlines. Got to give the Linotype Production Engineer credit – he had our composing-room problems pegged exactly right when he recommended a Wide Range Model 33."

Ask your Linotype Production Engineer to show you how a Model 33 will help cut costs in *your* plant.

This ad was set on a MODEL 33 in the following faces:

24-point Spartan Black with Italic
14-point Spartan Medium with Italic
12-point Spartan Heavy with Italic
10-point Spartan Medium with Heavy
8-point Corona with Italic
6-point Spartan Book with Heavy



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Supered book will tend to show etching imperfections more readily than newsprint and will present an entirely different ink drying problem. There is also a difference in the wire and felt sides of the paper because the wire side will print and accept ink differently than the felt side. Any corrections for paper two-sidedness must be done before the cylinder gets to the press.

Semi-coated book paper has less cushion, less bulk, greater density and is less two-sided than the other types mentioned. Semi-coated book paper will print with greater definition, provides greater opportunity for gloss and is more critical of tones and rate of ink drying. It also has less stretch which in turn leaves the pressman less flexibility.

Mr. Kussow said that in relation to overall paper consumption by the rotogravure industry, the quantity of Coated Book paper used is extremely small. This type of paper leaves a lot to be desired for general rotogravure purposes.

He related that the paper manufacturing industry recognizes the problems that face the rotogravure printer. It is cognizant of the importance of well wound rolls, uniform web draws and uniformity from roll to roll and from shipment to shipment. He asserted the fact remained that as greater precision papers are produced, any slight variations in paper are greatly magnified by gravure reproduction. And as greater, more complete definition is achieved by the rotogravure process, the more noticeable the variations become. It is his opinion that the most modern paper making equipment does a remarkable job of improving mechanical uniformity.

"The paper industry, after tremendous efforts," said he, "still has not found a means of testing and measuring with numbers, the qualities the rotogravure printed needs—and it is obvious the rotogravure printer is also at a loss to describe his process in numbers that mean something to the paper maker. The absence of evaluation in numbers that we both understand is a serious weakness in the whole operation of both rotogravure printing and the making of paper for rotogravure. All our testing methods combined do not, in the final analysis, predict what the end result may be." His conclusion was that "Testing and checking on a rotogravure press itself at present seems to be the only answer, but we must keep trying to find a better one."

F. D. Mills, Superintendent, Kable printing Co., Mt. Morris, Ill., wanted to know, in general, when a customer is shown a proof does he understand about the limitations in the gravure process? It was his thought that some customers expect too much. Chairman McBreen related that in a hypothetical case, the customer sees progressive proofs in which 10% has been lost from the art work. Perhaps he will OK the proof but when he sees the final result, the gravure printer may be in trouble.

It was the consensus of opinion that "We all want to progress." The client, at this time, must accept facsimilie reproduction. Mr. Homiak observed: "Do not improve upon the art work, but try to improve the printing."

One of the executives present stated that he personally feels the rotogravure ink suppliers are behind letterpress with respect to controls like the Inkometer, fineness of grind, and other means for controlling the properties of gravure inks.

Offset-Gravure

In answer to a query, it was brought out that offset-gravure is used primarily for printing wood grain effects on doors, desks and the like. The printing image is offset onto a rubber blanket which in turn prints upon the article itself. Mr. Homiak stated the technical problems are the same as in any other process. These offset-gravure presses have been built by Crawford, Inc., and by Orville Dutro & Son in Los Angeles.

Offset-Lith Makeready Sessions

ENTHUSIASTICALLY, the offset lith executives attending the Research & Engineering Council Makeready Meeting at the Palmer House, Chicago, early in December, discussed their mutual problems with respect to makeready. The two sessions were presided over by George S. Hammer, Quality Control Supervisor, Forbes Lithograph Mfg. Co., Boston. The following well-known people identified with the offset industry spoke at the afternoon panel session: Michael H. Bruno, Research Manager, Lithographic Technical Foundation, Chicago, discussed *Tone Reproduction and Makeready*; Frederick C. Kendall, Factory Manager, Kellogg and Bulkeley Co., Hartford, Conn., discussed *Platemaking and Pre-Makeready*; Charles W. Latham, Technical Advisor, Lithographic Technical Foundation, New York, discussed *Makeready on the Press*; while Don French, Plant Manager, Danner Press, Akron, O., described his experience with web offset equipment makeready in his plant.

At the evening session, mechanical adjustments, packing, pressures and similar matters related to makeready were discussed. The panel consisted of A. R. Bink, Manager, Offset Sales, American Type Founders, Elizabeth, N. J.; Albert T. Keuhn, Sales Service Engineer, Miehle Printing Press & Mfg. Co., Chicago; W. R. Spiller, Vice President, Harris-Seybold Co., Cleveland; and James J. Trier, Engineering Supervisor, Offset Presses, R. Hoe & Co., Inc., New York. All of these men discussed recent press developments for their respective companies. Manning Gurin, Rapid Roller Co., Chicago; Robert F. Reed, Research Consultant, Lithographic Technical Foundation, Chicago; and Albert P. Reynolds, Director of Printing, Testing and Research, Cumberland Mills, S. D. Warren Co., Cumberland, Me., occupied seats on the panel to answer questions.

Plant Manager Don French of Danner Press, Akron, O., talked interestingly about makeready operations on a four unit Webendorfer web-fed offset printing press in his plant. The following general summary gives an idea of these operations: Mill roll stands are moved individually for register on color work or on three signatures of black printing. Printing is done blanket to blanket. The cylinders can be swung 360 deg. circumferentially, and $\frac{3}{16}$ in. endwise for position and/or register. In-feed drive feeds the paper into the units. PIV drives propell the papers into the units. Tensions are adjusted for under or overpacking.

At 10,000 imp. per hr., a soft bodied ink must be used. To compensate for spread of the halftone dot, the camera shoots a 40% halftone.

Heat-set inks with ovens are used. The heat evaporates the volatile substance in the ink. The water cooling unit is positioned ahead of the former and folder to cool the web.

Deep-etch plates tend to stretch while operating on the press. These plates are taken up after 25,000 impressions or so. Mr. French related that an extra band is put on the plate to hold it rigidly to the cylinder. The plate is bent at an angle of 90 deg. These plates are not regrained or reused on Lithure plates. The plates are bent ahead of time.

When operating on a three unit run, the last or fourth unit can be made ready for the next run such as changing ink, setting the fountain, putting the plate on the cylinder, etc.

• *Time-Saving Tip*

No Messy Ink Knives

FOR proof presses and platen presses, a hand ink gun is a desirable piece of equipment. These are similar to screw-turn grease guns furnished with lubrication systems. (One type is the Diament ink gun.) The ink is extruded as needed from the gun barrel. Ink containers of this type promote cleanliness in the proof or press room. Another suggestion is that ordinary medical tongue depressors can be used as ink knives. These are obtainable at any drug store. Once used, they can be discarded.—Reported by Herbert Ahrendt, Vice President, Ahrendt, Inc., New York, N. Y., before Cleveland Craftsmen's Club.

THE PRIDE OF GAVRIN PRESS...

LYNCH Series E Paper Packaging Machine!

The Snap Easy BULLETTIN

Vol. 6, No. 8 • Published by Arthur J. Gavrin Press, Inc. — Manufacturers of One-Time Carbon Interleaved Snap-Easy and Continuous Forms • AUGUST, 1952

PACKAGING MACHINE WRAPS FORMS IN RAPID FASHION...

Our comparatively new packaging machine is put into operation immediately following cutting on the guillotine cutter. The packaging phase is the next to last step in forms production—the last and final step being the packing of the packages into corrugated boxes for shipment.

Full scale production found Gavrin Press on the top of the list for a Lynch Packaging Machine. Measuring nine by four feet, the machine is rectangular in shape standing well over four feet high. Sitting with a motionless outward appearance on the plant floor, the internal mechanism functions like an endless legged centipede—to our advantage. After setting the machine to the required length, width and thickness of the desired parcel, the forms are fed on a conveyor belt to the rear side of the machine direct from the cutting (Guillotine) operation. Inserted one stack at a time, the packaging machine squares up all sides, cuts kraft wrapping paper to the correct length, applies adhesive to both ends after the package takes shape, firmly presses mucilage and paper together and winds up the operation by ejecting the package to a second conveyor belt located at the front end of the machine.

Three operators are all that are required to perform the entire phase of the preshipment operation, which includes the cutting and trimming of the forms, placing cut forms on the first conveyor belt, inserting into machine in stack form and loading skid that is forwarded to the shipping department from conveyor belt number two. A job normally requiring eight people is handled by the machine in less than half the time with the assistance of three people.

To the many visitors to Gavrin Press, the Lynch Packaging Machine rates high on the "I'd like to see" portion of the guests plant tour. Five or ten minutes are usually spent at the machine by visitors—gazing upon the machine with the intent interest of a young boy that has discovered his first frog in a cool brook.

PAR AIR COMPRESSORS

ICE CREAM SANDWICH WRAPPING MACHINES

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•Time-Saving Tip

Paints Grippers for Safety

OCCASIONALLY one hears of accidents on platen presses caused by the operator's failure to get his fingers out of the way of the closing grippers. It can be observed that grippers will blend in with the other parts of the press after a stretch of continual hand feeding. A way of overcoming this is to paint the grippers with fluorescent paint to distinguish them from the other press parts. The bright color will warn the operator that the grippers are closing and to get his hands out of the way.—Reported by Herbert Ahrendt, Vice President, Ahrendt, Inc., New York, N. Y., before Cleveland Craftsmen's Club.

Rolls are mounted on mill stands and at the commencement of the run they are all of the same size to permit changing all rolls at one time when exhausted.

In order to keep the dampener cover rolls alike, a covering machine is used.

Some trouble was experienced with lint getting on the blankets and working back to the fountain. This was obviated by the use of board and burlap.

The bearers must be kept clean. Little pieces of felt soaked with oil are positioned in strategic places and these are changed with each run.

This press is operated three shifts, six days per week. In operating equipment of this sort, Mr. French said that it was essential that teamwork take place among all those working on the press.

During the discussion following Mr. French's talk, it was suggested that du Pont Teflon tape be used on the idler rollers in the press to prevent offset or smudging instead of the customary potato grater.

In answer to a question from the floor, it was brought out that there is no advantage in using deep-etch plates over surface plates other than for long runs.

A. R. Bink, Manager, Offset Sales, American Type Founders, Elizabeth, N. J., discussed sheet-fed offset presses and their basic adjustments.

With respect to blanket to blanket printing, Mr. French was asked if he can do color process work on the press which he had just described. He replied that color process work can be done but it is not tops in quality, but it is acceptable. This information was corroborated by a representative from Rochester Institute of Technology who said that producing color process work is a fussy operation, and that such work is acceptable.

In answer to a question from the floor, Mr. Bink said that in dry offset printing an accurate plate is needed. There is no problem in printing large halftones and open areas which can be printed without difficulty.

Mr. Bink then discussed the ATF-Mann presses and their features.

Albert T. Keuhn, Sales Service Engineer, Miehle Printing Press & Mfg. Co., discussed his company's offset presses. The press should be packed 0.002 in. to the bearers. All allowance of 0.003 in. to 0.004 in. pressure should be allowed between plate and offset cylinders. The adjustment is in 1:1 ratio so the two cylinders will run in true rolling contact by making an adjustment in diameter of cylinders, with 0.004 in. allowance on the printing line.

When necessary, departure from true rolling contact can be made with suitable packing. He discussed the packing on plate cylinders. True rolling contact is also maintained between blanket and impression cylinder, and between plate and blanket cylinder. Keuhn explained the register of the sheet to the impression cylinder on the 23 in. by 29 in. press. Separation of the sheet takes place only in the center of the sheet by means of air jets. He explained that the corners of the sheets in the pile can be up or down and wedges between the sheets in the pile are not necessary.

W. R. Spiller, Vice President, Harris-Seybold Co., Cleveland, in his discussion defined areas of makeready on offset presses. He explained charts which had been prepared with respect to time study data, also the time required for changing the press from one job to another. In particular, he referred to the Harris Two-Color 52 in. by 76 in. press on a man hour basis. By means of a chart he explained all of the elemental operations that affect press makeready time. He also mentioned the Harris double delivery by means of which work can be removed from the press without stopping the machine. The quick loading device, register through positive feeding of the sheet against the register pins, and the quick-acting clamps which provide fast press getaway. He explained the fourth way of fastening plates on the cylinder by mentioning the Aller plate with a bar at each end of the plate. This device has been in use for 14 yrs.

James J. Trier, Offset Press Engineering Supervisor of R. Hoe & Co., Inc., discussed Hoe's large sheet-fed offset printing press. The press is provided with a mechanism for registering while in motion. The plates may be pre-registered plus or minus $\frac{1}{16}$ in. relative to the front edge of the plate, from target to target with respect to one edge of the plate to another, and from one color plate to another.

"The plate clamping device," he said, "guarantees equal pull on the tail-edge of all plates."

Register is now a matter of positioning plates with respect to one cylinder to another. Circumferential and side adjustment on the cylinder is motorized.

A traveling gripper bar maintains a continuous hold on the sheet all the way through the four units of the press. If a sheet is misfed in the first unit it is thrown out on the floor. In the case of a thrown out sheet, a device clips off each unit as the gripper reaches that unit so double inking of the plate will not occur.

Impression is from blanket to metal.

At this point, Dr. Robert F. Reed, presented a short summary of the LFT register rule and the LTF sword hygrometer, both of which instruments have been devised to maintain accuracy with respect to clear printing and color register in the pressroom. The register rule is a valuable instrument for assuring register of sheets in color work and is accurate within 0.0005 in.

Albert P. Reynolds, Director of Printing, Testing and Research, Cumberland Mills, S. D. Warren Co., Cumberland, Me., talked about paper in relation to makeready. He said that paper troubles do slow up makeready operations and asserted that the paper people want to help the offset printer. Most plants are shooting for 55% r.h. range, but the printer must give attention to paper storage with respect to maintaining paper in proper condition. One can't bring cold paper into the pressroom and get satisfactory results.

During the discussion it was brought out that there is no way to pre-determine the pick test on roll paper. On the sheets, the manufacturer can determine pick resistence, but there are many variables.

Plate Mounting Ink, Paper, Rollers and Dry Offset

In Relation to Makeready

AT THE Friday morning, December 5, General Session of the Research & Engineering Council Makeready Conference, Joseph Chanko, General Mgr., The Conde Nast Press, Greenwich, Conn., presided as chairman. He was

•Time-Saving Tip

Quick Makeready

FOR quick makeready on platen printing presses, provide yourself with clear acetate sheets (either 0,005 in. or 0.010 in. thickness) cut to the size of the various kinds of jobs put on the press. For instance, if you do a considerable amount of envelope printing in 6¾ in. and No. 10 sizes, or on stock 4 in. by 6 in., or 8½ in. by 11 in., cut the acetate sheets to these sizes. After an impression has been taken on the tympan, the acetate sheet permits marking for position since you can readily see through the acetate sheet. — Reported by Herbert Ahrendt, Vice President, Ahrendt, Inc., New York, N. Y., before Cleveland Craftsmen's Club.

HEAR YE!

HEAR YE!

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Colonial lampblack to modern multi-color,
the flavor of memorable printing depends on the spice
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to compete and succeed with distinction and economy.

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Your reliance in the yield of a COTTRELL Press
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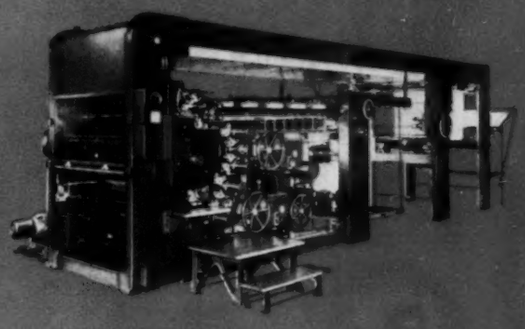

LETTERPRESS . . . . THE BASIC METHOD

COTTRELL

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assisted by a panel of speakers as follows: Edward Kuhn, Vice President, Printing Ink Division, Interchemical Corp., Cincinnati; Albert P. Reynolds, Director of Printing, Testing and Research, Cumberland Mills, S. D. Warren Co., Cumberland, Me.; Don E. Crews, Vice President, Sam'l Bingham's Son Mfg. Co., Chicago; and S. F. Chernoble, President, The Comet Press, Inc., New York.

At the opening of the session, Chairman Chanko discussed plate mounting on presses. He said that most of his experience has been related to printing from curved electrotypes. With respect to plate mounting on the press, he said there are 10 different answers with many problems. Next to the plate mounting problem, more trouble is experienced with engravings.

He mentioned the tension electrotype plate lockup for rotary presses which has been developed by Time, Inc. With respect to this particular tension lockup, he said there is only one drawback—not all printers can afford new cylinders for presses. He described somewhat in detail the tension plate lockup which has been developed in his plant. The slots for the hooks are milled in the underside of the plate. A plate 0.186 in. thick can be milled with two slots for the hooks in the underside of the plate in 45 sec. The special milling machine for cutting the slots in the plates was developed in the Conde Nast plant. If different size plates, however, are to be milled, a separate miller would be required for each size plate. To accommodate use of the cylinders already in the press, the plate hooks were redesigned for engagement in the slots in the plates while utilizing the standard grooved cylinders. Mr. Chanko concluded by stating that "There is a saving of 1 hr. per form on 64 plates."

The Importance of Ink in Relation to Makeready was the subject assigned to Edward Kuhn. Mr. Kuhn handled a complex and difficult subject well and his conclusion stated: "I find that I have only succeeded in running a narrow road through the surveyed area of ink making with little visibility on either side." He discussed the preparatory work involved in making an ink that is right for the job, from the standpoint of the manufacturer.

When the ink maker has accurately executed his tests for the particular purpose for which each ink is to be used, the printability of the ink has been well established. The tests used, however, are comparative—they are not positive measurements—and it is in this matter that the printer and ink maker must work together most closely. "Mutual understanding of the factors involved and meticulous attention to the details are the obvious essentials", he concluded.

The Importance of Paper in Relation to Makeready was the title of the address presented by Albert P. Reynolds. By means of 24 stereopticon slides, he described the papermaking process. He discussed the manufacture of paper with respect to thickness, roughness, compressibility, ink receptivity, ink wetability and ink pick resistance, and the different kinds of coatings.

Don Crews discussed *The Importance of Rollers in Relation to Makeready*. Mr. Crews stated that he feels rollers should not be considered as a part of press makeready. The main purpose of rollers is to distribute ink, but the carrying out of that objective is not always so simple. Ink distribution is a process of equalization. Rollers should always be set as lightly as possible and they must have an affinity for ink, must not be too tacky and must take and give up ink.

During the question and answer period following Mr. Crews' address, someone asked what roller manufacturers are doing to make a universal roller. Crews replied that roller manufacturers are getting farther and farther away from that idea. He said: "You men are demanding specific inks and rollers made for specific purposes. The roller men, however, are working with the ink manufacturers to supply the best rollers possible." Another question from the floor was related to the best wash for glue composition rollers. The reply was: "Kerosene."

Dry Offset

S. F. Chernoble, President, The Comet Press, Inc., New York, N. Y., made a very interesting presentation on *Makeready in the Dry Offset Process*. Mr. Chernoble explained that the dry offset process is still in a somewhat experimental state. The process possesses many virtues as well as many shortcomings. After development, however, "we feel dry offset will be a most versatile process" he said.

In the process there is practically no waste motion and there is practically no makeready. The process will succeed with a precision press and a precision plate. As in the case of offset, he agreed that makeready starts with the camera. Rather confidently he stated: "Dry offset plates don't go blind—they are not even near-sighted."

Plates are etched by conventional photoengraving method except that etching depth is obtained in two bites at the rate of 0.003 in. per min. Etching has been done to a depth of 0.012 in. Subject to change, of course, plate thicknesses are for magnesium 0.025 in. and for zinc, 0.027 in.

All of the printing image has to be in the surface of the plate. Experimental work has been done on halftones with 120 and 133 line screen.

Magnesium plates take 40 bends on and off the press before they break. Mr. Chernoble stated that magnesium plates still cannot be patched as successfully as zinc.

Preparing for a run, the ink can be set on 15 sheets and on the ordinary job, the press can be gotten into running order in 15 min.

In his experimental work, Chernoble found that a harder offset blanket (between 75 and 78 bounce durometer) does a better job. The inking rollers should test out at about 68 durometer.

No makeready is necessary under the blanket. From 0.001 in. to 0.0015 in. squeeze between blanket and impression cylinder is sufficient to print well.

On most of the work done at the Comet Press, a No. 1 enamel sheet is used. He has run newsprint and antique stock with the same makeready. The only makeready necessary is to compensate for slight variations in the blanket thickness. Average press speed is 4000 sheets per hr.

Where plate changes are necessary during a run for imprinting or other purposes, Chernoble stated that on a 22 in. by 34 in. press, the plates have been butted in two sections to facilitate making the imprint changes.

Opens Chicago Office

The John Hewson Co. has opened an office in Chicago located at 6349 North Western. Robert H. Metz, jr., has been appointed District Mgr. Metz will be in charge of sales, field applications and servicing of Takk High Voltage d.c. Insulation Test Sets and High Voltage Power Supplies, Takk High Speed Static Control Systems and Staticator Master Static Warning Systems in the Chicago area.

Los Angeles Speakers

Printing profits and ratio studies were discussed recently at two separate meetings of Printing Industries Assoc., Inc., of Los Angeles. Speakers were John M. Wolff, jr., President, Printing Industry of America, Inc.; John G. Gerken, Management Consultant to PIA; Harry Kamph, President, Business Systems, Inc.; and Fred Pawell, CPA Controller, Parker & Co.

Ink Research Progress

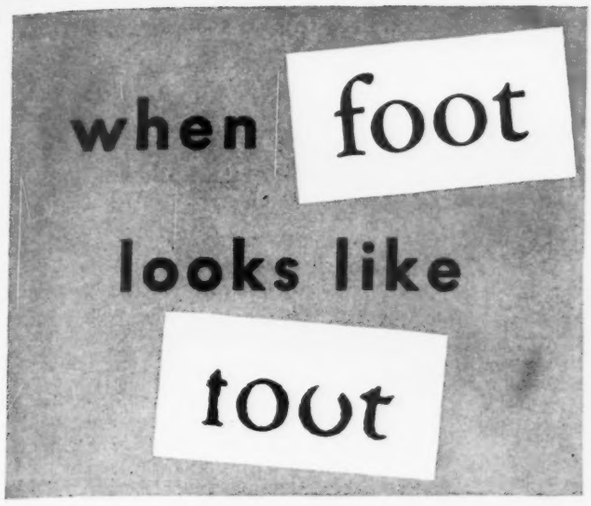
A research survey covering many fields of ink development attracted 34 representatives to the recent Fifth Annual Technical Conference of the National Printing Ink Research Institute held at Lehigh University, Bethlehem, Pa. A new concept of complex driers and an improved design of rotational viscometer for low viscosity inks were among the subjects covered.

Rogersol Distributors

The Harry H. Rogers Co. has announced the appointment of Interchemical Corp., Printing Ink Div. and Fuchs & Lang Mfg. Co., Div. Sun Chemical Corp., as distributors of Rogersol 1-2-3 roller and blanket washup solution. At the same time, it was announced that John H. Szel will handle all distribution of Rogersol 1-2-3 outside the United States.

New England Division

Ralph C. Persons, President of Sun Chemical Corp., has announced the formation of General Printing Ink Co., New England Div., with headquarters at 87 Binney St., Cambridge, Mass. The new division will serve Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island. It will be under the management of Philip J. Kirby, who for the past eight years has been the Boston branch manager of Fuchs & Lang Mfg. Co.



Getting too many broken characters lately due to faulty type metal? There's a permanent cure for that. Just put Imperial's "Better Metal-Better Printing" Program to work for you. It is a simple plan that will take all the headaches out of your type metal. Here's how:

1 **PERIODIC ANALYSIS SERVICE** plus detailed laboratory reports without charge to keep you informed as to the exact condition of your metal supply.

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Why not start now to get the full benefits of this Imperial "Better Metal-Better Printing" plan?

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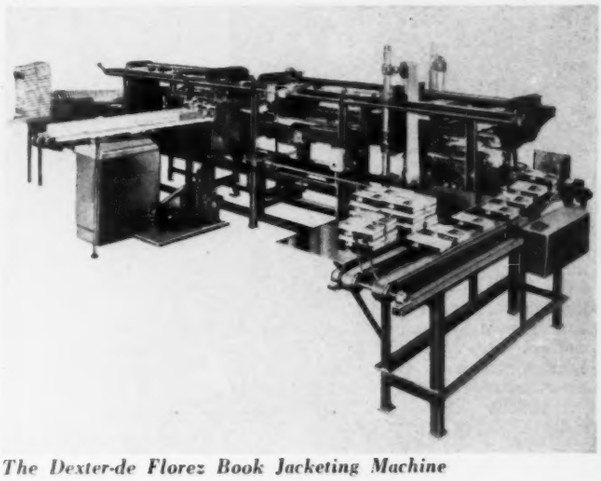
How to cut your book jacketing costs by as much as 50%, and get all around better jacketing



The Dexter-de Florez Book Jacketing Machine

Jackets and books are fed in automatically, the former from hopper which can be kept loaded to permit uninterrupted operation, the latter by a Cleveland continuous automatic feeder.

Jackets are applied with uniform accuracy, creased around covers and wrapped to any desired degree of tightness. Experience has proved the machine capable of sustained production of 3,500 to 4,000 books jacketed per hour using the normal crew of three.

Size of books handled ranges from $4\frac{3}{4} \times 6$ to $7\frac{1}{4} \times 10''$; bulk ranges from $\frac{3}{8}$ to $2''$. Because of the short time required to set up the machine for new runs, it is economical for short runs as well as long. A New York binder reports that he finds it profitable to use on runs of as few as 500 books.

Where it has been the work of a single operator to jacket *and* inspect, this machine makes it possible for the operator to concentrate on the business of inspecting alone. The result is a profitable increase in the number of books jacketed and inspected in any given period, a proportionate decrease in costs and better performance on both operations.

The experience of users over extended periods has shown that this Dexter de Florez machine can cut jacketing costs by as much as 50%.

Demonstration may be arranged and our representative is ready to figure with you the savings this machine may effect in your bindery.
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Rochester Plant Installation—Shown here is the Lawson automatic three-knife Rapid Trimmer recently installed at Lawyers Cooperative Publishing Co., Rochester, N. Y. The machine, distributed by the E. P. Lawson Co., is designed for automatic conveyor line trimming of books, magazines and pamphlets at reported speeds of 15 to 25 lifts per min. Infeeding, clamping, trimming and delivery to the built-in conveyor belt is accomplished automatically. The Rapid Trimmer will handle trim work in sizes from 2 in. by $3\frac{1}{8}$ in. to $11\frac{3}{4}$ in. by $16\frac{7}{8}$ in. Weight of the machine is 4600 lbs. Other Rapid Trimmer installations announced by D. W. Schulkind, Lawson's President, include: R. R. Donnelley & Sons, Crawfordsville, Ind.; Brock & Rankin, Chicago; Bookwalter Co., Inc., Indianapolis; Concordia Publishing House, St. Louis; Superior Bindery, Cleveland; and Gray Printing Co., Fostoria, O.

Recent Equipment Reports

Rosback Installations

Recent installations of Rosback bindery equipment reported by the F. P. Rosback Co. are as follows: Pony Vari-Speed Rotary Perforators — Ideal Bindery, Miami, Fla. (installed by E. C. Palmer & Co., Ltd.); Lincoln Press, Fall River, Mass. (installed by Zimmer Printers Supply Co., Inc.); and Caslon Press, Albany, N. Y. (installed by American Type Founders, Inc.). Twenty-two Special Slot Rotary Perforators—Des Moines (Ia.) *Register & Tribune* (installed by Western Newspaper Union); Homer (La.) *Guardian Journal* (installed by Western Newspaper Union); Bank of Passaic & Trust Co., Passaic, N. J. (installed by Addressograph-Multigraph Corp.); Hustler Press, New Mexico, N. M. (installed by A. E. Heinsohn); Wm. Rand, New York, N. Y. (installed by Irving Nissenbaum, Inc.); Star Bindery, New York, N. Y. (installed by Irving Nissenbaum, Inc.); Moyer Printing Co., Jeannette, Pa. (installed by Harry Guckert Co.); McCaw Printers, Columbia, S. C. (installed by Addressograph-Multigraph Corp.); The Lebanon Democrat, Inc., Lebanon, Tenn. (installed by American Type Founders, Inc.); Walraven Bros., Dallas, Tex. (installed by E. C. Palmer & Co., Ltd.); Gordon Printing Co., San Antonio, Tex. (installed by Western Newspaper Union); and Lone Star Press, Port Arthur, Tex. (installed by E. C. Palmer & Co., Ltd.). Gang Stitcher—Three Rivers Press, Three Rivers, Mich. (installed by American Type Founders, Inc.); Auto-Stitchers—Atlantic Bindery Co., Inc., New York, N. Y. (installed by E. P. Lawson Co., Inc.); and Philadelphia Naval Shipyard, Philadelphia, Pa. (installed by E. P. Lawson Co., Inc.).

The Speedwell Press of Hoboken, N. J., has installed a Mann two-color offset press, according to an announcement by American Type Founders. The Mann unit is the third ATF press to be installed at the Speedwell firm.

Causes of Accidents

According to a study by safety engineers for Lumbermens Mutual Casualty Co., accidents resulting from mishandling of objects and materials produce the greatest number of lost-time injuries in the printing industry. The study shows that 32.6 per cent of the injuries can be attributed directly to mishandling. Other causes which rank high on the list of injury producers are mishaps involving machinery, accounting for 16.2 per cent of the injuries, and falls, which are responsible for 15.8 per cent of the total.

W. Dean Keefer, Director of Safety Engineering for Lumbermens, said that accidents cannot be explained away by the word carelessness alone. It does not correct any unsafe conditions nor save any lives, he asserted. Best accident results in printing establishments are being achieved where management takes a direct interest in recognizing the basic causes of accidents—unsafe conditions and unsafe acts—and eliminating them.

Correcting unsafe environmental conditions is the easier part of the safety task. Teaching workers the proper attitudes so they will practice safety on their own is the more difficult for workers tend to minimize the hazards of their jobs.

R.O.P. Color Committee

President Charles F. McCahill of the American Newspaper Publishers Assoc., has announced the appointment of a Subcommittee on Run-of-Paper Color, together with advertising agency representatives, of the ANPA-AAAA Joint Committee on Newspaper Printing. The Subcommittee is to study the problems involved in the reproduction of R.O.P. Color advertising and wherever possible to establish R.O.P. Color standards, from the preparation of original art work to the finished product. The following are representatives of the ANPA on the Subcommittee: James H. Armistead, Nashville (Tenn.) *Tennessean and Banner*; Julian J. Eberle, Cox Newspapers, Miami, Fla.; Earl J. Gaines, Pittsburgh (Pa.) *Press*; Henry Garland, Pittsburgh (Pa.) *Post-Gazette*; Joseph E. McMullen, Milwaukee (Wis.) *Journal*; Fred Shafer, Chicago (Ill.) *Tribune*; and Herbert T. Stanger, Boston (Mass.) *Christian Science Monitor*.

Progress on Goss Plant

Erection of structural steel for the 126,560 sq. ft. addition to the new plant of the Goss Printing Press Co. in Cicero, Ill., was begun recently. Work on this second major part of the new Goss plant is expected to be completed in February 1953, according to J. A. Riggs, Executive Vice Pres. Total area of the entire facilities will be more than 355 thousand sq. ft. Construction also is proceeding on the building which will house the Goss manufacturing and engineering offices.

The plant is being designed for the manufacture of newspaper, rotogravure, magazine and multi-color web presses, states R. C. Corlett, President. For the time being, the new section will be used primarily for defense production. The construction site in the Chicago suburb provides ample space for expansion in the future.

Another office structure, which will accommodate the Goss executive, sales and accounting offices, will be added later. Upon completion of the addition, the Goss firm will transfer machinery, stores, blueprint vaults, manufacturing division and engineering offices from the old plant at 1535 S. Paulina St., Chicago, to the new location. However, subassemblies and the printing press erection department will remain at the Chicago plant for some time longer, along with the executive, sales, field service and accounting offices.

Monotype School Changes

Expansion and modernization of the facilities of the Lanston Monotype School in Philadelphia to be made in early 1953, has been announced by Robert F. Nelson, President of Lanston Monotype Machine Co. New casting equipment will be added to the school which will include such recent improvements as Centering and Quadding, Patton Attachment and Shoulder Spacing. Instruction in the operation of the Monophoto Phototypesetting Machine will be given when the machine becomes available, including processing and developing of film. The $10 per week tuition fee will be dropped when the new school opens. Instead, a deposit fee of $25 will be required for those enrolling, which will be refunded upon successful completion of the course, said Nelson. Instruction material and text books will be supplied students without cost.

Sun Chemical Division

Sun Chemical Corp. has announced the formation of a new division, the Sun Supply Co. Under the management of Jack Mather, and with headquarters at 10th St. and 44th Ave., Long Island City 1, N. Y., the division will sell and service supplies for all branches of the Graphic Arts. Products of the Sun Supply Co. will be distributed directly, as well as through the company's various divisions. Mather formerly was New England district manager in charge of sales and service for the Geo. H. Morrill Co.

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In our shop we're really set up to handle those small jobs. You know the ones I mean—most of the runs are short and most of the forms are small. Many are quite simple, but a good number require close register and fine quality. They represent the majority of our orders —and yours.

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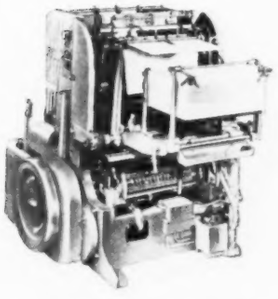

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exactitude, unusual simplicity of operation.
Unequalled for single tone
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Meticulous precision-craftsmanship throughout.
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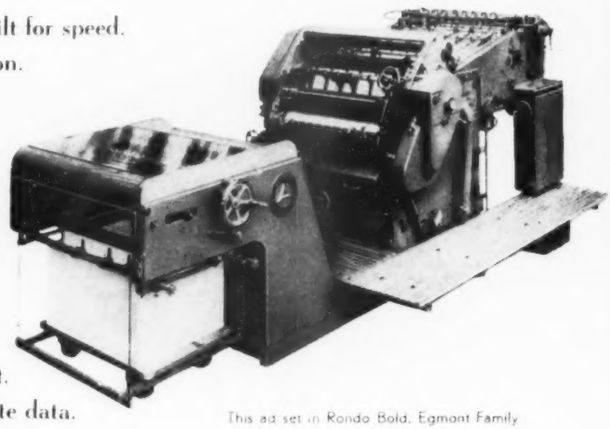

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Conference Dates

(With Organization Names and Principal Officers)

American Photoengravers Association — 1953 Convention, Hotel Statler, Boston, October 12, 13 and 14. President, D. H. Murnik, Oakland National Engraving & Gravure Co., Oakland, Calif.; Frank J. Schreiber, Executive Secretary, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1953 Conference, Milwaukee, Wis., June 15, 16, 17 and 18. Conference sessions and exhibits to be held in Civic Auditorium; Conference headquarters, Hotel Schroeder. Chairman of the Committee, William E. Gibbons, Production Mgr., Chicago (Ill.) *Herald-American;* Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference — 1953 Conference, Lansing, Mich., June 26 and 27, hotel to be announced. Secretary-Treasurer, Robert Wolf, Richardson-Taylor-Globe Co., 4501 Mitchell Ave., Cincinnati 32, O.

Graphic Arts Trade Association Executives—President, Robert Hostetter, Printing Industry of Pittsburgh, 3124 Jenkins Arcade Bldg., Pittsburgh 22, Pa.

Gravure Technical Association — 1953 Meeting, Hotel Sheraton, Chicago, January 28, 29 and 30. President, Len S. Pinover; Secretary-Treasurer, J. E. Hazel, Room 4800, 30 Rockefeller Plaza, New York 20, N. Y.

Great Lakes Newspaper Mechanical Conference— Secretary-Treasurer, Don Clark, Stereotype Supt., Grand Rapids (Mich.) *Press.*

Illinois Newspaper Mechanical Conference —1953 Conference, Hotel Jefferson, Peoria, Ill., September 26 and 27. President, Thomas Lowry, Peoria (Ill.) Newspapers, Inc.; Secretary-Treasurer, Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.

Intl. Assoc. Electrotypers & Stereotypers— President, Walter C. Dohm, Norman-Dohm-O'Flaherty Co., Inc., 228 E. 45th St., New York, N. Y.; A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, O.

International Association of Printing House Craftsmen — 1953 Convention, Adolphus Hotel, Dallas, Tex., September 13, 14, 15 and 16. Convention in 1954 to be held in Philadelphia, dates to be announced. President, Gordon J. Holmquist, Cole-Holmquist Press, 1228 S. Flower St., Los Angeles 15, Calif.; Executive Secy., Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, O.; Convention Chairman, Homer L. Green, Wilson Engraving Co., 2117 Commerce St., Dallas 1, Tex.

International Graphic Arts Education Association—1953 meeting to be held in New York, N. Y., in June. Dates and hotel to be announced later. President, Patrick F. Boughal, Principal, New York (N. Y.) School of Printing; Acting Educational Director, Fred J. Hartman, 719 Fifteenth St., N. W., Washington 5, D. C.

International Typographic Composition Association — 1953 Convention, Mayflower Hotel, Washington, D. C., September 24, 25 and 26. President, John R. Connell, Connell Typesetting Co., 302 E. Eighth St., Kansas City 6, Mo.; Frank M. Sherman, Executive Director, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conference—1953 Conference, Hotel Fort Des Moines, Des Moines, Ia., May 16, 17 and 18. President, Glen Meloy, Des Moines (Ia.) *Register-Tribune;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton (Ia.) *Herald.*

Kansas Newspaper Mechanical Conference —1953 Conference, Town House, Kansas City, Kan., September 12 and 13. President, William Lawrence, Wichita (Kan.) *Eagle;* Secretary-Treasurer, Larry Miller, Kansas Press Assoc., 701 Jackson St., Topeka, Kan.

Lithographers National Association — 1953 Convention, Edgewater Beach Hotel, Chicago, June 17, 18 and 19. President, William H. Walters, United States Printing and Lithograph Co., Mineola, L. I., N. Y.; Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Mid-Atlantic Mechanical Conference—1953 Conference, William Penn Hotel, Pittsburgh, Pa., March 12, 13 and 14. Jointly sponsored by the New Jersey Press Assoc. and the Pennsylvania Newspaper Publish-

ers Assoc. Conference Director, Theodore A. Serrill, PNPA General Mgr., 209 Telegraph Bldg., Harrisburg, Pa.

Missouri Newspaper Mechanical Conference—Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index.*

National Association of Litho Clubs — 1953 Convention to be held in Detroit during month of May, exact dates and hotel to be announced later. President, John F. Maquire, Offset Engravers, 42 E. 20th St., New York, N. Y.; Secretary, Angelo Pustorino, Daniel Murphy Co., 480 Canal St., New York, N. Y.

National Association of Photo-Lithographers—Executive Vice President, Walter E. Soderstrom, 317 West 45th St., New York 36, N. Y.

National Printing Equipment Association, Inc.—President, Fred S. Tipson, T. W. & C. B. Sheridan Co., 135 Lafayette St., New York 13, N. Y.; James E. Bennet, Secretary, 140 Nassau St., New York 38, N. Y.

New England Mechanical Conference — 1953 Conference, Hotel Statler, Boston, October 17 and 18. Charles W. Noonan, Pressroom Supt., Providence (R. I.) *Journal-Bulletin;* Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day.*

Northwest Mechanical Conference — 1953 Conference, Hotel St. Paul, St. Paul, Minn., March 7, 8 and 9. President, Robert E. Lee, Composing Room Supt., St. Paul *Dispatch* and *Pioneer Press;* Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conference — 1953 Conference, Statler Hotel, Los Angeles, September 25, 26 and 27. President, Al Tennyson, Composing Room Supt., Los Angeles *Times* and *Mirror;* Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News.*

Printing Industry of America—1953 Convention, Edgewater Beach Hotel, Chicago, dates to be announced later. President, John M. Wolff, jr., Western Printing & Lithographing Co., Southwestern Div., 1310 S. Spring St., St. Louis, Mo.; James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington, D. C.

Research and Engineering Council of the Graphic Arts Industry, Inc. — 1953 Membership Meeting, May 14 and 15, city and hotel to be announced later. 1954 meeting, May 11 and 12; 1955 meeting, May 12 and 13, city and hotel to be announced later. Next Executive Meeting, Hotel Cleveland, Cleveland, January 23, 1953. President Edward J. Triebe, Kingsport Press, Kingsport, Tenn.; Official Headquarters. Bernard J. Taymans, Managing Director, 719 Fifteenth St., N. W., Washington 5, D. C.

Screen Process Printing Association—1953 Convention, Statler Hotel, New York, November 1, 2, 3 and 4. President, Joseph Grossman, Masta Displays, Inc., 230 W. 17th St., New York 11, N. Y.; Secretary, Dan Novak, 549 W. Randolph St., Chicago 6, Ill.

SNPA (Eastern Div.) Mechanical Conference — 1953 Conference, Henry Grady Hotel, Atlanta, Ga., August 24 and 25. Conference Chairman, C. Leroy Ray, Mechanical Supt., Winston-Salem (N. C.) *Journal* and *Sentinel;* Secretary, Ray B. Crow, Southern Newspaper Publishers Assoc., P. O. Box 1569, Chattanooga 1, Tenn.; Chairman of Mfrs. and Suppliers' Group, W. E. Neely, Sam'l Bingham's Son Mfg. Co., 274 Trinity Ave., S. W., Atlanta, Ga.

SNPA (Western Div.) Mechanical Conference—1953 Conference, Texas Hotel, Ft. Worth, Tex., March 8, 9 and 10. Chairman, Frederic R. Rice, Little Rock (Ark.) *Democrat;* Secretary, Walter Johnson, jr., P. O. Box 1569, Chattanooga 1, Tenn. Chairman of Supply Men's Committee, Edwin Yagow, Goss Printing Press Co.

Technical Assoc. of the Graphic Arts — 1953 Meeting, Wardman Park Hotel, Washington, D. C., April 27, 28 and 29. President, John McMaster, Graphic Arts Div., Eastman Kodak Co., Rochester, N. Y.; Secretary-Treasurer, Paul J. Hartsuch, Printing Ink Div., Interchemical Corp., 161 W. Harrison St., Chicago 5.

Ink-Rub Tester Approval

A committee representing the National Assoc. of Printing Ink Makers, the Packaging Institute and the Folding Paper Box Assoc. has announced that it has found the Sutherland Rub Tester to be the most satisfactory instrument for measuring the rub resistance of ink on folding cartons. The announcement was made by L. R. Ayers, Robert Gair Co., Inc., Chairman of the Special Joint-Industry Ink-Rub Test Task Committee.

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HOW *Fotosetter* WORKS

In plant of Warwick Typographers, St. Louis, to produce typographic composition for photomechanical purposes.

APPRAISALS of the utility of Fotosetter phototypesetting equipment have been made from time to time. Some of these appraisals are by users of the equipment itself. It seems that applications of the equipment to certain types of composition are made according to the dominant need in each plant. One firm is using the Fotosetter largely for rule form work. Another is using it for general composition, while yet another is using it for straight matter work. In any event, the major uses of Fotosetter equipment in the plant of Warwick Typographers, St. Louis, are different from that of any other in the country so far as we are able to ascertain.

The firm of Warwick Typographers has always been known as a typographic composition house which does creative work by embodying outstanding design and imaginative composition. Thus when the Fotosetter phototypesetting machine became available, President Hubert J. Echele and Vice President John M. Lamoureaux saw in its use unlimited possibilities not only for fine typographic composition, but also for development of a market for work which did not presently exist or which was being done by laborious and expensive hand methods by artists and others who were called upon to satisfy the requirements of particular customers. Among these were advertising agencies, creative printers and sales managers of companies who insist upon new selling techniques.

When Messrs. Echele and Lamoureaux probed the possibilities, it was determined that the equipment could be made to serve the following purposes: (1) Sales portfolios, the market for which had disappeared because of the cost factor; (2) Variety of specialty work; (3) Create a market for products which had not existed previously, and (4) Satisfy the offset printers' demand for an all-photographic product.

The fulfillment of these requirements was not as simple as it seemed. The reason is that an entirely new concept of handling the copy and art work had to be formulated together with the installation of special photographic equipment plus sympathetic manipulating procedures. This special complementary photographic equipment is as important in the reproduction operation as the Fotosetter itself. It consists of darkroom, darkroom cameras, a number of special type reproportioning lenses, together with underneath illuminated layout tables and a photocopying machine.

Imagination and Visualization

The major consideration, however, which would contribute to successful operation of Fotosetter equipment was the exercise of tremendous imagination and visualization of the completed job before copy was sent to the machines. Not only must the type faces and measures be marked as in hot metal composition, but the spacing between each line must be determined and marked in the copy at each line in the case of display work before composition commences. When the original layout is made, it is known that type characters on the film may be blown up to as much as $5\frac{1}{2}$ times normal size, (in many cases larger) careful instructions must be issued to the operator. The important matter of spacing between type lines also must be taken into consideration, so that if the 12 pt. type lines, for instance, are to be enlarged to 30 pt. size, the line spacing must also be marked correctly in the original size so that the spacing between lines will be increased in correct proportion.

New Techniques Required

The techniques used in phototypesetting are new and strange to the mechanically minded printer. Thus at the start of phototypesetting operation there are a number of problems between composing machine operation and the final press plate. The greatest of these is the creation of a "blue print" (layout) system and the ability of the layout man, the composing machine operator, and the photomechanical operator to visualize the finished job and to work sympathetically with it throughout the reproduction process. In other words an open and flexible mind is required. "We feel," said Mr. Echele, "that after the painful training period through which we went we have succeeded in permeating our phototypesetting working force with the proper mental attitudes."

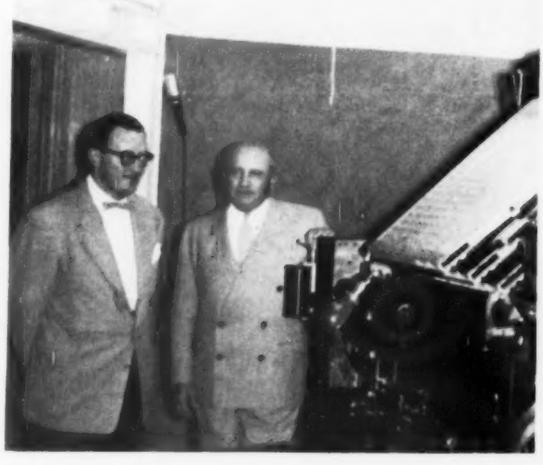
The Blue Print System

For some time now, most successful typographic composition houses are those that regard a layout as a specification "blue print" or layout somewhat after the fashion of those used generally in all machine manufacturing plants. Properly marked copy eliminates expensive production time, not only in resetting type lines, but more importantly, the spacing between the lines.

Predominantly Creative Plant

Warwick Typographers for a long time have operated a predominantly creative typographic composition plant. Linotype, Monotype, Ludlow and hand composition is executed. This section of the plant employs approximately 65 persons.

The three Fotosetters presently util-



These two men compose the moving spirit behind Warwick Typographers, St. Louis typographic composition house. Standing at one of three Intertype Fotosetters are (right) Hubert Echele, President, with John M. Lamoureaux, Vice President.

• CHICAGO • LOS ANGEL
• NEW YORK • DETROIT • NIAG
PHILADELPHIA • ST. PAUL • SAN
PROVIDENCE • BALTIMORE • CLEVELAND
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WASHINGTON

Fotosetter success story

IN A SINGLE PICTURE

Just two and a half years ago the first Fotosetter photographic line composing machine was put into commercial use in Rochester, New York. Since then, Fotosetter machines have "set up shop" in composing rooms across the nation. They have clearly demonstrated their many practical advantages to a wide variety of users.

Prominent among an impressive and rapidly expanding list of Fotosetter users are the following:

- **the world's largest automobile manufacturer**
- **an international business form printer**
- **the United States Government**
- **the United States Air Force**
- **the United States Army**
- **numerous typographers**
- **large and small offset plants**
- **book publishers**
- **a copperplate engraving company**
- **a nationally known label printer**

Every passing month adds new names to the list . . . finds profitable new uses for Fotosetter machines. That's because the Fotosetter method produces clean, sharp composition in the *form you need for platemaking.*

INTERTYPE, FOTOSETTER, FOTOFONT, FOTOMAT and VISILITE are registered trademarks.
Fotoset in Bodoni and Futura families.

for photographic composition
look to Progressive Intertype

Intertype Corporation

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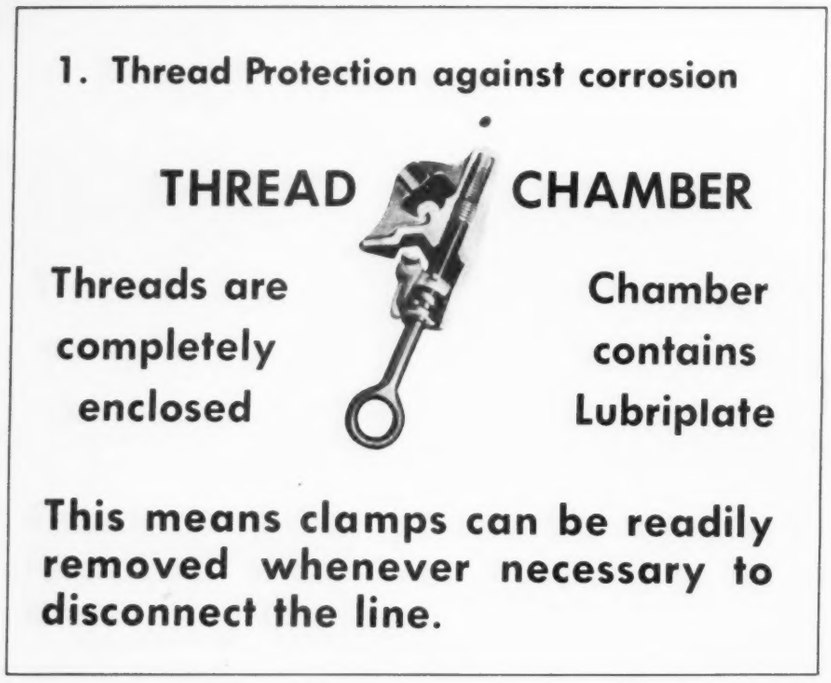
Chicago 10, Ill.
San Francisco 11, Calif.
Los Angeles 15, Calif.
New Orleans 10, La.
Boston 10, Mass.

Toronto Type Foundry Co., Ltd., Toronto, Can.
Montreal, Winnipeg, Vancouver, Halifax


1. Thread Protection against corrosion
THREAD
CHAMBER
Threads are completely enclosed
Chamber contains Lubriplate
This means clamps can be readily removed whenever necessary to disconnect the line.

One page of an interesting booklet the composition for which was executed on the Fotosetter by Warwick Typographers, St. Louis, for an offset printer. It consists of 28 pages, 10 in. wide by 8 in. high, is illustrated and is printed in black with red punch lines. The type lines were blown up from 8 and 12 pt. negatives set on the Fotosetter in sizes ranging from 24 pt. to 36 pt., 48 pt. and up to approx. 144 pt. The job was printed offset. Critical inspection shows that all edges and corners of the letter characters are sharp and the body of the type is dense. Mr. Echele stated the typesetting and negatives for this job were produced considerably under the cost of the conventional method. About 560 pounds of metal would be required to set this job. The negatives for the entire job are stored in a 6½ size envelope.

ized by Warwick with photographic and layout equipment are contained in a walled-off section on the same floor as the hot-metal composing room. The former section is air-conditioned to maintain cleanliness of film during processing. The developing sinks are temperature-controlled to insure constant and stable processing of film. These items are mentioned because they are important to the work at hand.

Hot Metal Holds Advantage in Face Variety

"For the offset platemaker's composition," said Mr. Echele, "we previously set the body composition on the machine and the heads were set by hand; after proofreading, the job was locked up in a chase and squared before reproduction proofs were taken. The proofs were then either photographed by the platemaker or in the case of transparencies, printed down direct upon the plate, if same size. With Fotosetter typesetting, the photographically processed film is supplied the platemaker ready for photomechanical use.

"Hot metal typesetting still holds the advantage in composition because of the availability of a great variety of type faces which are not obtainable on the Fotosetter. This disparity of selection is offset somewhat by our ability to reproduce a wide number of point sizes from the one set of matrices including the in-between point sizes.

"We could do a greater volume of phototypesetting if we had more trained personnel. This thought also brings up the point that the average man always expects displacement with respect to his means of earning a livelihood when revolutionary methods and equipment are introduced. I want to remark that in our own case, installation of phototypesetting equipment has not eliminated a single employee but rather has been the means for increasing our business volume. Phototypesetting is another important part of our entire business.

Will Not Replace Hot Metal Method Completely

"In considering the utility of creative photographic typesetting we do not in any way make prejudicial comparisons with hot metal type composition. The two mediums are useful—one will never replace the other completely. Our only concern is to try to give the customer what he wants. In this respect we have found phototypesetting flexible and profitable. Primarily, blowups of type composition are sharp with dense letter characters. The overall uniformity and sharpness of the type, since it is a photographic to photomechanical operation, is suited to the offset process. The bulk of phototypeset composition is transferred directly to the plate by transmission rather than by projection. Thus there is no light leakage in the reproduction operations which might occur or have to be guarded against in projection reproduction."

Mr. Echele related that he had been following phototypesetting over a 15 year period. "It seemed for a while," he said, "including the so-called cold typesetting methods, there was a trend toward cheaper composition in which quality was ignored. Our own personal reaction was that the answer to composition needs did not lie in the cold typesetting method. There are too many customers who want quality and original design.

"The firm of Warwick Typographers has always been known for the originality and quality of its work. The major need in the Graphic Arts has been for improvement in quality. The means for supplying quality has been provided in the Fotosetter but in order to realize that quality, education of those working with phototypesetting equipment and tech-

This illustration is intended to show how copy is marked for the Fotosetter operator. The marking is done with a spring steel scale calibrated in 5 pt. divisions. Progressive figures are indicated every 10 pts. up to the 500 pt. capacity of the scale. The markup man works from the artist's original or proportionately reduced layout or in the case of a reset or conversion job, he works direct from the printed piece. In order to simplify the symbols on the operator's copy, the markup man includes *both* the body size of the type and the white space (leading) immediately beneath the line. Thus, if a line is to be set in 18 pt. with 6 pt. leading the markup man will place the figure 24 at the left of the line on the operator's copy. If there is to be an 8 pt. block of type below the 18 pt. display line, 1 pt. leaded, the markup man places a figure 9 with brace covering the block at the left side of the copy. These markings are in addition to the customary markings used for regular type composition. When the operator sets the copy, he adjusts the Fotosetter film mechanism to include both body type size and white spacing in the one adjustment of the machine. It is readily understood that leading cannot be changed after composition as in hot-metal typesetting unless the job were to be reset on the Fotosetter.

niques is needed. There are so many little operations which really might be considered major. First of all, there is the human element including everybody from the proprietors, the sales representatives, the designers and the craftsmen in the plant.

"At the present time," continued Mr. Echele, "The Fotosetter is employed primarily in offset and gravure composition. A case in point with respect to utility of composition methods is that in book and catalog work where a job is to be produced and where the type is set in metal, the offset printer has little chance. Naturally, the question arises: "Why not print it by relief?" On stored or repeat jobs of many kinds, however, where the existing type or plates are worn or have been destroyed, the offset method and phototypesetting can compete. With phototypesetting forms can be kept standing in small space.

"As stated previously, it is our opinion that phototypesetting will never replace hot metal composition entirely. We employ hot metal reproduction type proofs in conjunction with Fotosetter negatives where the customer requires type faces which are not available on the Fotosetter.

"With the phototypesetting method, we employ emulsion to emulsion at all times. We come up with as near perfection as possible without the usual headaches."

Flexibility of Equipment

As employed at Warwick Typographers, the 12 pt. matrices are used for 9, 10, 11, 12, 14, 16, 18, 24, 30 and 36 pt. composition. The 8 pt. matrices are used for 4, 5, 6, 7 and 8 pt. composition. As has been stated previously, faces may be blown up 5½ times original size. Positive photographic reproduction proofs which have already been enlarged from the original negative can be enlarged beyond the 5½ times.

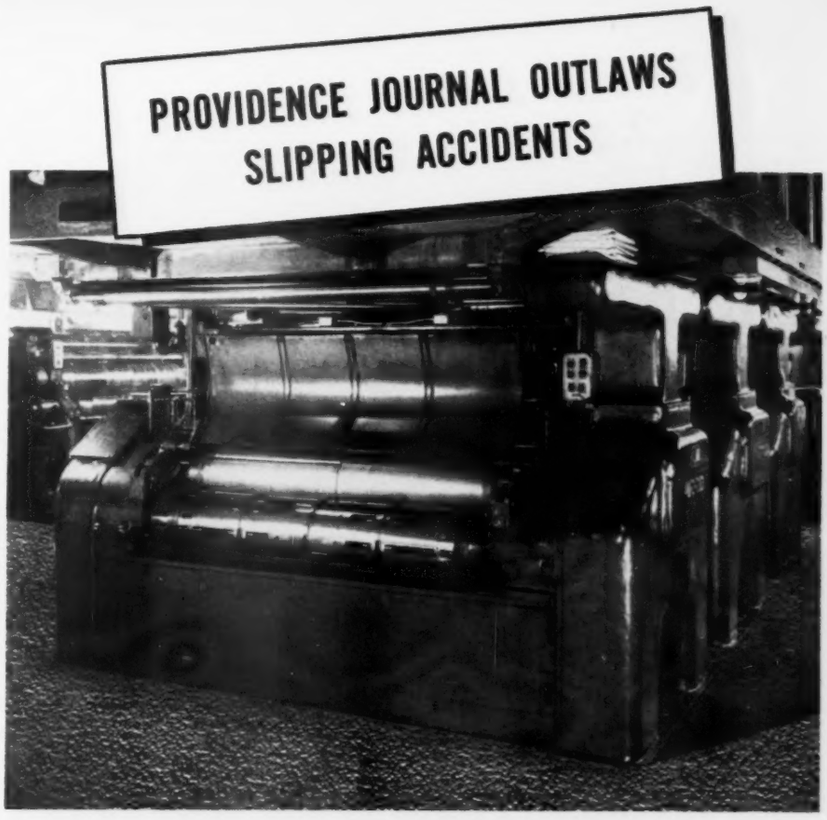
Mr. Echele pointed out a number of features of the phototypesetting method as follows:

Another flexible feature of photographic typesetting is that in many instances display lines may be enlarged or reduced to fit into a given space irrespective of the width of the space or point size of the type.

Some Unusual Applications

While it is difficult to visualize jobs discussed without seeing the actual specimens, the following will indicate a few of the kinds of work being done on Fotosetter equipment by Warwick Typographers.

Some jobs come into the Warwick plant which might be produced by other processes, for instance by silk screen, or in "limited editions" of one or two copies. For sales meetings and other gatherings, Warwick furnishes streamers which are mounted above the chairman's position in the meeting room. Some of these are 6 ft. or more wide with white letters on black background. These letters are perhaps 144 pt. high and are blown up from the original 12 pt. negative.

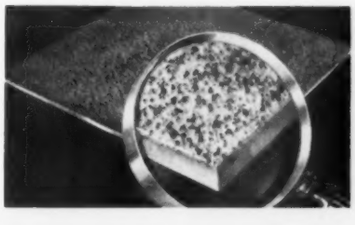


with Floor Plate That Pays for Itself

A new kind of foot-safety is paying double dividends in the Providence (Rhode Island) Journal's pressroom. It's ALGRIP Abrasive Rolled Steel Floor Plate — the non-skid accident-preventer that pays for itself in lower insurance premiums.

Wherever you install ALGRIP, accident rates *and* insurance rates are bound to tumble. The reason is ALGRIP's unique construction — abrasive "grinding-wheel" grain rolled densely and deeply into steel plate's upper portion. This rough, tough abrasive puts *hundreds of tiny safety brakes in every footstep*—makes it virtually impossible to slip on ALGRIP, even on steep inclines! Results: Higher morale, higher production, lower insurance premiums.

Get these *savings from safety*, starting today. Take a moment to request our new ALGRIP Foot-safety Booklet, AL-33. Also, ask any questions you wish; we'll be glad to answer them.



RECENT INSTALLATIONS—Here are a few recent installations: Plain Dealer, Cleveland, Ohio • Seattle Times, Seattle, Washington Beaumont Enterprise & Journal, Beaumont, Texas • St. Petersburg Times, St. Petersburg, Florida • Washington Times Herald, Washington, D.C. • Also many other, names furnished upon request.

◀*Magnification shows even distribution of abrasive grain.*

THERE'S NEVER A SLIP ON A. W. ALGRIP

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ALAN WOOD STEEL COMPANY

Conshohocken, Pa.

OTHER PRODUCTS: A. W. SUPER-DIAMOND Floor Plate • Plates • Sheets • Strip • (Alloy and Special Grades)

Another job was a formal invitation to an automobile exhibit. The invitation was composed in Lucia Script. It is impossible to detect in the enlarged 36 pt. size any evidences of joints between the letters which were photographed from 12 pt. Fotomats on the Fotosetter.

Technique Flexibility

In explaining some of the techniques employed in producing type films for offset platemaking, Mr. Echele said that in one instance, Bruning proofs were provided in scale with the original job. The final reproduction proofs were enlarged 50% to fit the art work.

Mr. Echele is proud of the booklet, *Second Annual Awards Book*, published by the Lithographers National Association, Inc. Composition was executed 100% by Warwick Typographers. Three of the pages were set 18 picas wide in 11 pt. Garamond leaded 1 pt., two columns to the page. As is sometimes the case, composition either was'nt fitted exactly or copy was changed after page proofs had been submitted. The changes resulted in the last page being 14 lines short. In order to avoid resetting or to lead the last page of the type, the idea was conceived of repasting the made-up pages and inserting horizontal rules in color for decorative effect. Mr. Echele discussed this booklet just to indicate that the phototypesetter has some of the same problems as the hot-metal compositor.

On straight-matter or page composition, the same problems occur with respect to widows as in hot metal typesetting.

Leading between lines of phototypeset copy, must be controlled in the blue print or layout and in the copy.

In phototypesetting, there is no need to set butted slugs. The type matter can be set in 8 pt. and enlarged photographically to right width.

The end result in composition is the important factor. As between hot metal reproduction proofs and the Fotosetter, generally speaking, there is an even break in cost. The exception, however, is in composition over 14 pt. in favor of the Fotosetter.

In agreement with another user of phototypesetting equipment, Mr. Echele observed that in straight-matter composition on the Fotosetter and hot-metal line-composing machine, where the same keyboard is used and the operators are competent, the cost factors are about even.

In Fotosetter composition, the end result is in the proof and the negative. In platemaking from reproduction proofs composed by hot metal equipment, there are various additional operations involved.

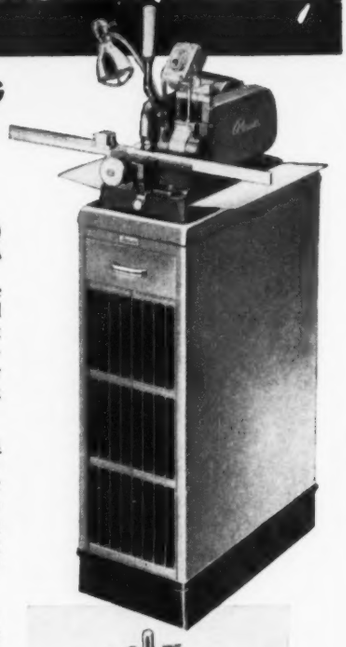
Control Over Job at All Times

"Successful operation of Fotosetter equipment is dependent upon overall production control of the job," Mr. Echele stated. "We do have control over the job. Similarly to any industrial manufacturing concern, all work is 'blueprinted,' to use a general term. A layout is provided with every job—perhaps in miniature, but accurate nevertheless. Not only that, but all copy is marked for measure, type sizes *and* spacing between the lines. In other words, the layout or markup man must visualize the final result. This is a great help to the Fotosetter operator who must possess above average skill in positioning lines and spacing (leading) between lines. His copy is marked so he can devote his entire attention to good composition in volume."

DO THE WORK OF HOURS *in Minutes!*

SLASH YOUR PRINTING COSTS WITH THE

Rouse POWER MITERER



If you need miters in either small or large quantities, no other machine nor method can turn out anywhere near as many perfect joining miters so quickly from strip material. That's how the Rouse Power Miterer can slash your printing costs by doing work in minutes that now takes you hours.

A Rouse Power Miterer won't cost you one cent! Printers the world over say that money paid for a Rouse Power Miterer quickly comes back through tremendous savings in expensive time. After getting your money back, you'll start collecting daily dividends from permanently lower operating costs.

FROM THE SMALLEST JOB SHOP UP TO THE LARGEST PLANT, ONLY ROUSE MAKES A POWER MITERER FOR EVERY TYPE OF USE.

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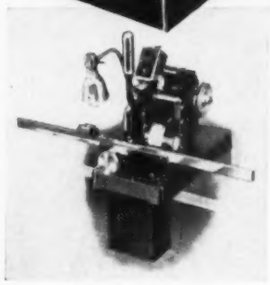

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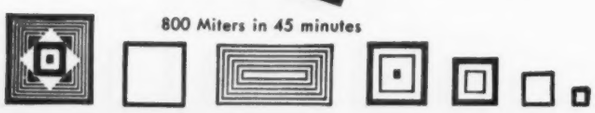

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SLUG CLIPPERS
BAND SAWS

Patents

For The GRAPHIC ARTS

Covering patents issued October 7, October 14, October 21 and October 28.

Binding, Cutting, Perforating:

2,613,375. APPARATUS FOR GLUING-OFF AND END SHEET PASTING. The apparatus includes a jogger for settling the signatures of the page block into alinement. Rotating discs apply adhesive to the outside signatures in a narrow strip along the sides adjacent the sewn signature edge. End sheets are conveyed into position alongside the outside signatures and are pressed into adhesive applyer consisting of two main rollers and doctor blades and adapted to glue-off the binding edge of the page blocks. A drier completes the operation. Invented by Edwin K. Smith, jr., New

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

York, N. Y., and Charles W. Buckley, Mount Vernon, N. Y. Assigned, by mesne assignments, to The de Florez Co., Inc., New York, N. Y. Application December 17, 1948. 4 Claims.

2,615,161. **SIGNATURE FEEDING AND STITCHING MACHINE** is particularly for smaller-sized printing plants. Invention discloses the combination of stitching machine proper with a packer, operated in synchronism therewith. Operation of packer is tied in directly with operation of stitching machine so that as the stitched assemblies are successively delivered from the latter onto the packer table they will be collected in a pack, with the upper edges exposed for inspection. Invented by Albert H. Schmidtke, St. Joseph, Mich. Assigned to F. P. Rosback Co., Benton Harbor, Mich. Application October 18, 1950. 3 Claims.

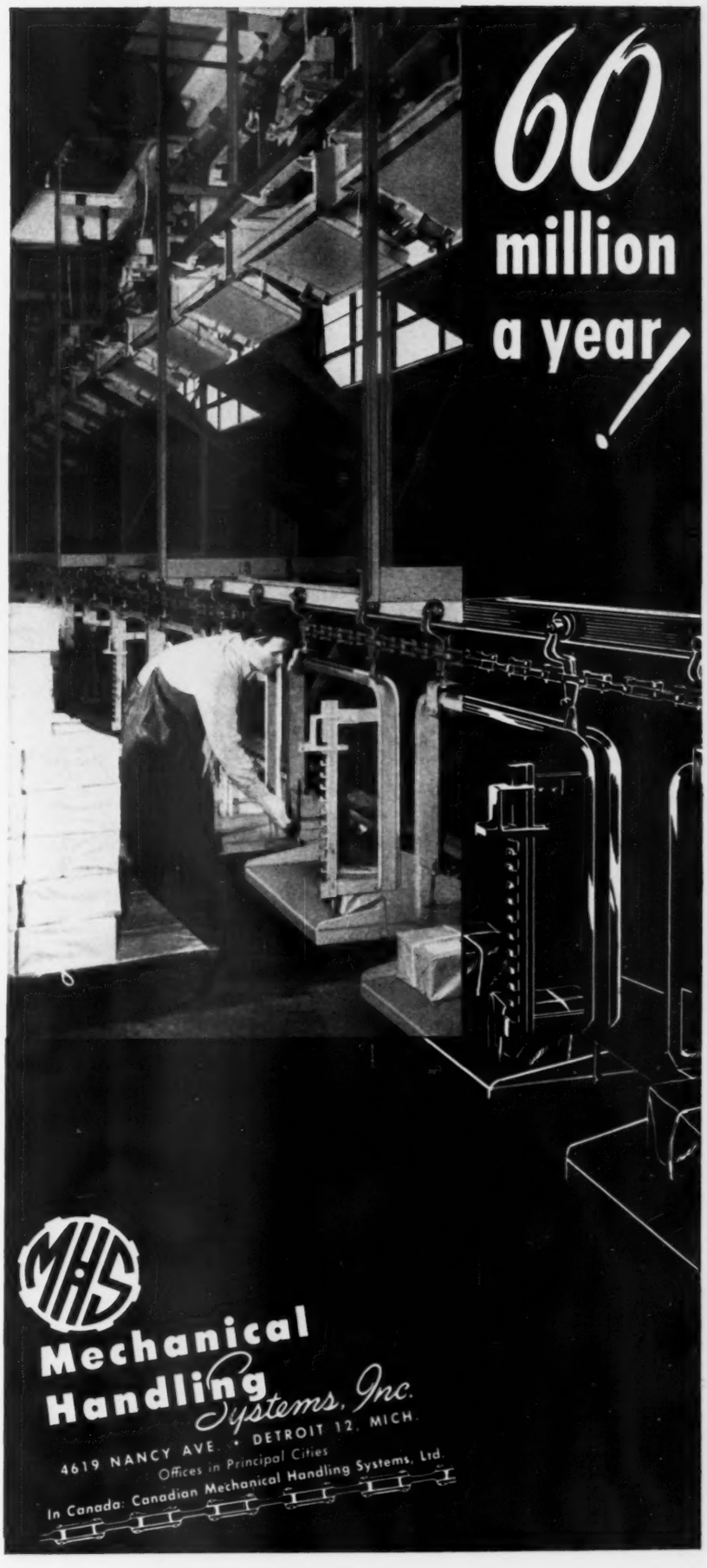
2,615,410. **AUTOMATIC BOOK CUTTING-OFF DEVICE** is for severing the stitching threads between the last signature of one book and the first signature of the following book. Stitching machines are improved by the present invention by reciprocating the cutting knives instead of the pressure plates. Invented by W. A. Larkins, Kingsport, Tenn. Unassigned. Application June 21, 1948. 1 Claim.

2,615,422. **GLUING DEVICE** is disclosed as applied to a flat and fold wrapping machine in which wrappers are folded around books with the ends of the wrappers disposed in overlapping adhesive engagement. The invention provides a device in which the glue applying roll is provided with a plurality of circular glue applying surfaces arranged in spaced relation to apply a plurality of narrow lines of adhesive. Gluing and backing rolls are journalled upon a common bearing bracket. Device is mounted for sliding movement to adjust for varying sizes of wrappers. Invented by Raymond E. Ackley, Evanston, Ill. Assigned to W. F. Hall Printing Co., Chicago, Ill. Application August 1, 1950. 7 Claims.

Composing Room:

2,613,602. **FORM COMPENSATER.** Disposable compensating insert is usable in setting a block of type. It comprises a strip of paper stock, reversably folded upon itself transversely of the strip in alternating layers. A portion of the layers are of lesser extent than others. There are adhesive coated areas on the strip. These are brought into contacting relation upon the folding of the strip to unite the strip into a one-piece assembly. Invented by Harry R. Retter and Charles R. Greene, Tipp City, O. Said Retter assigned to said Greene. Application September 4, 1948. 1 Claim.

2,613,803. **ASSEMBLER SLIDE RETURN.** In a matrix assembling mechanism, a



slide return includes an element mounted for movement vertically parallel to the elevator. A kinematic mechanism positively interconnects the slide and the element so that movement of the slide as it receives the matrices will cause movement of the element, and reverse movement of the element will restore the slide to starting position. Another mechanism impositively connects the elevator and element so that the elevator will move the element only when the former descends to positively restore the slide to starting position. Invented by David Diamond, Forest Hills, N. Y. Unassigned.

Feeding, Folding, Delivery:

2,613,077. FOLDING AND GATHERING MEANS FOR BOOKS. The apparatus has successive cyclic groups of printed page impressions arranged in ranks and files on a continuous web. The ranks are folded longitudinally across the web by form folders into a strip of one page width. Cutting rollers laterally sever the strip into segments of one page length. Feed rollers, operating at higher peripheral speed than the cutting rollers, receive and space the segments to be received by guide plates pivotally mounted adjacent the feed rollers. The segments are discharged from the plates to a continuously moving receiving station in successively different planes to a side-by-side relation. The plane of delivery of the sheets is at right angles to the path of the conveyor. Invented by Edwin K. Smith, jr., New York, N. Y. Assigned, by mesne assignments, to The de Florez Co., Inc., New York, N. Y. Application January 13, 1949. 2 Claims.

2,613,929. SHEET DIVIDING AND COMPILING MACHINERY. The invention provides adjustable means for aligning the lateral edges of strips of paper to prevent overlapping of the sheets of one stack upon those of another as they are stacked in predetermined arrangement on an intermittently moving conveyor. The ends of the sheets are also aligned. The stacking and aligning mechanism is actuated by and synchronized with a reciprocating carriage feeding the sheets to the conveyor. The conveyor advances step by step, the length of each step being equal to the width of strip of paper. Invented by Edward B. Sullivan, Cincinnati, O. Unassigned. Application May 15, 1950. 12 Claims.

2,615,713. SHEET SEPARATING MACHINE is for use in feeding individual sheets to a printing press. An air nozzle in the form of a foot is adapted to be rested on the edge of a pile of sheets and to direct one blast of air between top sheet and the pile. A second air nozzle is movable with the foot to direct direct a blast of air against a face of the pile and to assist separation of remaining sheets by a "fluffing" action. A valve controlling air supply to the nozzles works in timed sequence with paper grippers of the press. Invented by Headley T. Backhouse, Sunningdale, England. Unassigned. Application April 21, 1949; in Great Britain April 22, 1948. 1 Claim.

Platemaking:

2,612,731. PLATE BLASTING MACHINE. A lithographic plate is arranged to be held in curved shape so as to present a concave surface. An abrasive stream is directed against the surface to grain it. The plate may be automatically moved along a travel path including the blasting zone by a supporting structure which automatically engages the plate without requiring a clamping operation, and advances the plate in steps, an abradant stream being directed between steps along a swath transversely of the plate stepping movement so that swath by swath one entire plate surface becomes grained. Invented by Wiltie I. Gladfelter and Robert B. Huyett, Hagerstown, Md. Assigned to Pangborn Corporation, Hagerstown, Md. Application October 9, 1950. 8 Claims.

2,613,578. MACHINE FOR MILLING POCKETS IN CURVED STEREOTYPE PLATES includes an inspection platform upon which plates are placed, a section for shaving and cutting recesses or pockets in their curved edges and a cooling and drying section. The stereotype plates are adapted to be secured to press cylinders by gripping elements that enter the recesses and hold the plates under longitudinal tension. The machine of this invention forms the recesses or pockets by milling them in the precast plates. Invented by Oscar C. Roesen, Scarsdale, N. Y. Assigned to Wood Newspaper Machinery Corp., Plainfield, N. J. Application May 29, 1951. 8 Claims.

2,614,042. METHOD FOR COLOR SEPARATION is adapted for the reproduc-

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tion of water colors or oil paintings. The method provides for reflecting color light to an overhead camera from opaque copy to be reproduced and for transmitting color light to the camera through transparent copy for producing color separations which includes the substitution of white light flash tubes for arc lamps as a source of light and, in place of filters, the light source is broken down into component color bands. A flash tube is placed behind a prism at a point where the spectrum colors are brightest and a slotted meshing device is placed between prism and copy so as to select color band to be projected therethrough. Invented by William C. Huebner, New York, N. Y. Unassigned. Application July 18, 1947. 6 Claims.

Printing Inks:

2,615,854. PRINTING INK is adapted for quick drying by application of heat. Carbon black, peacock blue, phloxine red and similar pigments are used. The ink is a heat stable gel-like composition consisting of from 30 to 60 parts by weight of a terpene-modified phenol-formaldehyde resin, 70 to 40 parts by weight of high boiling aliphatic hydrocarbon solvent having a boiling point not lower than 240 deg. C. and between 2 and 4 percent by weight of the composition of aluminum octoate. Invented by John Pantin, Chicago, and Gordon R. MacQuaker, Wheaton, Ill. Assigned to Sun Chemical Corp., Long Island City, N. Y. Application September 9, 1949. 9 Claims.

Printing Presses and Equipment:

2,613,595. REVOLVING MULTIPLE COLOR SCREEN PROCESS PRINTING TABLE. Device is so constructed that fabric or paper pieces are located on a plurality of platforms arranged in a circle and rotatable about a fixed base on which is hinged the screens. In one operation of the squeegee the colors from a plurality of screens are transferred each to one of the plurality of fabric or paper pieces. Invented by Joseph T. Weldon, New York, N. Y. Assigned, by mesne assignments, to Multiscreen Corporation, New York, N. Y. Application January 5, 1950. 2 Claims.

2,613,596. STENCIL PRINTING APPARATUS as a whole is similar to that of the rotating roll and reciprocating platen machines of the Miehle type. It comprises a reciprocating stencil, a squeegee below the stencil and a grooved inking roller below the stencil. Means are provided for bringing the stencil into contact with the squeegee and roller on alternate strokes of the stencil. There is a roll in close rolling contact with the inking roller and an ink reservoir for supplying ink to the roller for transfer to the grooves in the said roller. Invented by Karl W. Meissner, New York, N. Y. Unassigned. Application February 9, 1949. 7 Claims.

2,613,599. OSCILLATING BED AND PLATEN PRESS. The curved platen press is of the character wherein the curved platen is pivotally mounted for rotation about an axis adjacent one end thereof and is so mounted on a stationary frame. The type bed is mounted on an oscillating frame. The pivotal points of the platen and oscillating frame are so located relative to each other as to obtain pin point contact or proper registry between the platen and type during printing. Invented by William C. Rupp, Parma, O. Assigned to The Chandler and Price Co., Cleveland, O. Application August 23, 1946. 5 Claims.

2,613,600. INKING ARRANGEMENT FOR PRINTING PRESSES. Applies principally to color presses. The invention discloses, in an inking arrangement for a printing press having a fountain roller and a more rapidly rotating transfer roller of rubber, a feed roller arranged in face-to-face engagement with the transfer roller and having limited clearance with respect to the fountain roller for wiping off ink from its surface. Feed roller is polygonal in cross section with the number of sides in the range of 6 to 12 per inch of feed roller diameter. Invented by Henry L. McWhorter, Hinsdale, Ill. Assigned to The Goss Printing Press Co., Chicago, Ill. Application February 7, 1950. 4 Claims.

2,613,603. METHOD AND APPARATUS FOR SETTING MOISTURE-SETTING PRINTING INKS on a traveling web with stream is disclosed. A first steam conditioning chamber communicating with the steam source is for expansion of steam to a reduced superatmospheric pressure. A second chamber communicates with the first for further expansion of steam therefrom into second chamber. Entire wall surface of second chamber is in heat receiving contact with a higher temperature atmosphere outside the said

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Installs Three Miehle Presses—The D. F. Keller Co., Chicago, recently completed the installation of three Miehle No. 29 Offset Presses. Messrs. Keller and Schwab of the Keller firm, and McWilliams of the Miehle company, are shown inspecting a printed sheet from one of the new presses.

chamber for imparting heat into chamber and to steam to inhibit condensation. Outlet from this chamber permits discharge of moisture-conditioned and dry steam as a jet upon the web. Invented by Carl A. Ireton, Dayton, O. Assigned to The Specialty Papers Co., Dayton, O. Application June 11, 1947. 8 Claims.

2,613,633. WAX POWDER APPLICATOR AND OFFSET ELIMINATOR. Offset and blocking are eliminated by this invention which provides apparatus for distributing a wax powder on the inker web. The invention discloses a member which serves not only as one side of the feed hopper but also as a doctor blade of adjustable character which prevents the building up or accumulation of powder upon the feed roll. Invented by William Russell Dreesen, Indianapolis, Ind. Unassigned. Application October 12, 1950. 2 Claims.

2,614,491. PROCESS FOR REGISTERING COLOR PLATES. A plurality of printing plates are automatically registered on a printing press cylinder by preparation of a master layout copy. A tape is affixed across the layout to one side thereof on the face of the copy. A second tape is affixed to the opposite side. The tapes have spaced punch marks matching the spacing of plate engaging pins on the cylinder. A negative of the copy is made photographically and the negative is reproduced on as many plates as there are color plates required. The plates are etched to cause the tape spots to appear as countersinks. Invented by Gilbert C. Murphy, Indianapolis, Ind. Unassigned. Application November 27, 1948. 2 Claims.

2,614,492. METHOD OF AND APPARATUS FOR PRINTING. The apparatus comprises an impression cylinder carrying a rubber printing plate. A knurled inking roller with a hard surface is disposed to engage the rubber plate. A smooth-surfaced softer roller is disposed to engage the inking roller. Ink consisting of a resinous binder and a solvent boiling below 450 deg. F. is supplied and constantly maintained throughout the length of the bight between the inking and smooth-surfaced rollers. Pressure is adjusted to control depth of the layer of ink on the knurled surface which is then brought in rolling contact with the rubber plate. The inked impression of the plate is then transferred to a traveling web. Invented by George R. Brodie, Lower Merion Township, Montgomery County, Pa. Assigned to Fred'k Levey Co., Inc., New York, N. Y. Application December 17, 1947. 5 Claims.

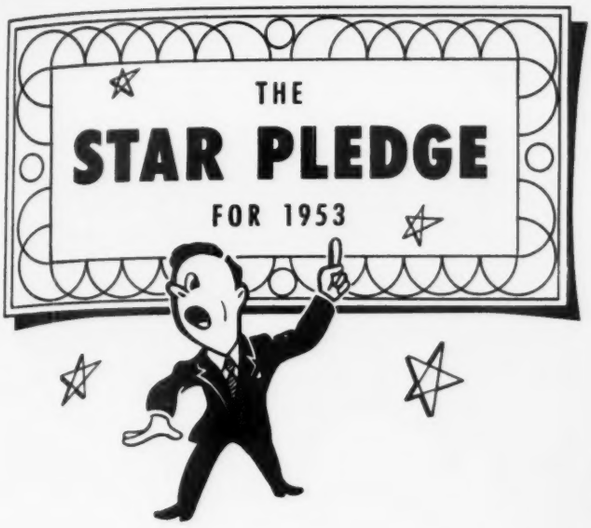
2,614,493. METHOD OF PRINTING. To avoid offsetting when printing on opposite sides of a web successively using plate and impression cylinders, the sheet material is heated. To the sheet is then applied an impression of an ink comprising a coloring agent and a vehicle containing a thickening agent and a solvent. The solvent has low vapor pressure to make the ink stable but capable of rapid vaporization upon application of heat. Heat applied is below the amount where discoloration occurs but sufficient that the heat carried by the sheet at time of applications of ink will vaporize the solvent leaving a dry impression. Such a temperature is between 225 and 400 deg. F. Invented by George Rogers Brodie, Lower Merion Township, Montgomery County, Pa. Assigned to Fred'k H. Levey Co., Inc., New York, N. Y. Application April 2, 1946. 5 Claims.

2,614,528. DRY SPRAY EQUIPMENT, comprises a powder spray tank having an outlet and an inlet with means for delivering compressed air into the inlet. One or more fixed nozzles in the tank are connected to the inlet and each is positioned to direct a jet of air across radii of the tank and downward into the powder in the tank at an angle of less than 90 deg. This whirls the air in an oblique path to stir up a cloud of powder in the tank. Means are associated with the outlet for creating a suction means in tank, whereby powder may be entrained from cloud to surface to be sprayed. Invented by Charles W. Britcher, Glen Ridge, N. J. Assigned to Craig Corporation, a corporation of New York. Application April 30, 1948. 6 Claims.

2,615,389. UNIVERSAL PRINTING CYLINDER can be used in relief, gravure, offset methods, etc., but is especially adapted for electronographic presses. It comprises a perforated cylindrical shell with closed ends, and strip material wound around the outer surface of shell. Said strip material has portions thereof provided with transversely extending protuberances and adjacent convolutions of the material abut each other thereby providing a plurality of elongated narrow openings intermediate each convolution in communication with the perforations of the shell. An imperforate cylindrical member of lesser diameter than shell is supported interiorly thereof to provide an intermediate liquid chamber. Ink can then penetrate to surface of wound material through said openings. Invented by William C. Huebner, New York, N. Y. Assigned to The Huebner Co. Dayton, O. Application August 6, 1948. 21 Claims.

2,615,393. SEQUENTIAL TRIPPING MECHANISM CONTROL FOR MULTICOLOR OFFSET PRESSES is disclosed. Unit tripping mechanism is shown for tripping the plate, impression and ink motion off in predetermined order and in timed relation to rotation of the impression cylinder and for tripping the same on in the same predetermined order and timed relation. In combination therewith there is a sequential trip control for operating the unit tripping mechanisms of the units in the said sequence and further plate trip control means operated by the sequential trip control for tripping on a plate of a unit during a rotation of the impression cylinder preceding the rotation in which the first said unit tripping mechanism is operated by sequential control in the said sequence to trip on the impression and ink motion. Invented by Alexander J. Albrecht, West New York, N. Y. Assigned

California Craftsmen Hear Dr. Ovink—Dr. G. W. Ovink, Art Director, Typefoundry Amsterdam, spoke before five Southern California Craftsmen's clubs during a recent week's stay in Los Angeles. Dr. Ovink has been touring the United States and Canada on a speaking tour under sponsorship of American Type Founders. Shown here, from left to right, are: (seated) Gordon J. Holmquist, President, Intl. Assoc. of Printing House Craftsmen; Dr. Ovink; (standing, left to right) Tom Willis; Ed Johnson, Orson Udal, Los Angeles Branch Mgr., ATF; and Cyril C. Stanley, President of the Los Angeles Craftsmen's Club and also President, Lithographers Plate Service, North Hollywood, Calif.



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to R. Hoe & Co., New York, N. Y. Application January 27, 1948. 8 Claims.

2,615,394. MOUNTING OF IMPRESSION PLATES ON PLATENS. Invention is concerned particularly with presses of the type wherein an impression is taken on an impression plate superimposed on and secured to the face of the platen. Machines of the type include printing, creasing or cutting presses with rotating platen. According to one feature of the invention the impression plate is mounted for bodily movement, with respect to the platen, in a guided path between the position of rest and another stable position. The means for mounting and shifting the plate are self-locking both in the working position, i.e., the position of rest of the plate, and in the advanced position. Invented by John I. Nasmith and Flavius K. Daniels, London, England. Assigned to Vickers-Armstrong Ltd. London, England. Application January 12, 1949; in Great Britain January 22, 1948. 7 Claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D.C.

EXECUTIVE Cs

Ralph C. Persons (shown here) has been named President of Sun Chemical Corp. and George W. Ullman has been moved up to Chairmanship of the Board. Persons was formerly Executive Vice Pres. and Director of Sun Chemical, while Ullman was President and Director. Ullman also was president of the Sigmund Ullman Co. from 1918 to 1929 and in the same capacity with the General Printing Ink Corp. Persons had served as Sun's first vice president and as chairman of the Graphic Arts Group. Prior to that he was general manager of the Morrill and Eagle Printing Ink Divisions of the company. He joined Sun in 1944 after starting his career on a Cleveland newspaper.

Willard A. Anderson, 53, Plant Engineer of the U. S. Government Printing Office, died November 29 at his home in Silver Spring, Md., after a long illness. Mr. Anderson was a graduate of the Illinois Institute of Technology and became associated with the GPO in 1930. He was well known throughout the printing industry for pioneering in the functional use of color and lighting in the GPO and other plants, and was a frequent speaker on this subject before Graphic Arts gatherings. He was a member of the Research and Engineering Council of the Graphic Arts Industry, Washington Club of Printing House Craftsmen, and Chairman of the Printing and Publishing Section, National Safety Council.

•

Robert W. McElroy has been promoted to the newly created position of Director of Safety and Security for Minnesota Mining & Mfg. Co. and its subsidiaries, according to C. P. Pesek, Vice Pres. in Charge of Engineering and Properties. Pesek also named Jerome M. Mayer as Manager of Fire Protection.

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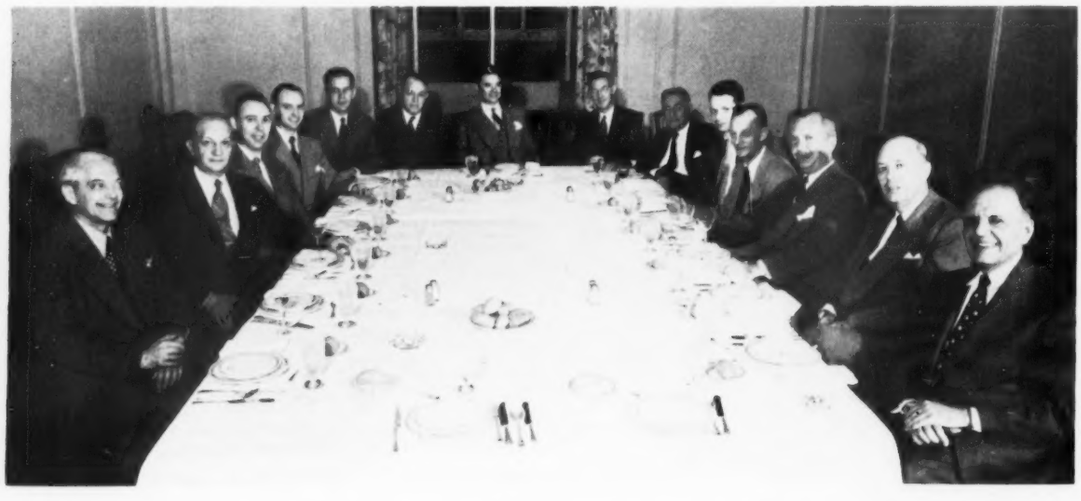

Monthly Engineering Meetings—R. Hoe & Co., Inc., recently inaugurated monthly dinner meetings of the Company's engineering leadership group. The purpose of the meetings is to obtain improvement of printing press machinery in its various forms from informal mutual discussions and observations. A specific subject is usually presented for discussion. Each member is given an opportunity of reporting any interesting observations or jobs on which he has worked since the previous meeting.

At the November 1952 meeting, the group shown in the picture aggregated 331 years of printing press experience. A variety of experience in this country and abroad is represented in this group. All phases of Graphic Arts work are covered in rotogravure; magazine; newspaper; web and sheet offset; metal decorating; paper reels, tensions and pasters; printing plate machinery and other fields related to the high speed production of printed matter in its various forms.

Chief Engineer E. W. Worthington is Chairman; G. M. Oleson is Secretary, and Program Chairman is W. C. Wieking. Each month at least one of the Company executives attends together with a specialist in a related field such as paper, ink, rubber rollers, blankets, etc. Recorded minutes are kept of each meeting and are maintained as a permanent reference for developmental, organizational and operational matters. Copies of the minutes are circulated among the Hoe management executives and the board of directors. Thus they are able to secure much greater familiarity with the engineering phases of the Company's work than heretofore.

On occasion, guests are invited from other Company departments. At this time, interdepartmental problems are discussed in an effort to plan for better cooperation. A discussion of users' problems relating to printing equipment is recorded, as any attempt at improvement is based on field experience.

Named in the picture above are, clockwise:

Carl Ringe, Asst. Director of Research; Andrew Hegeman, Director of Research; James Trier, Offset Press Supervisor; Gunnar Oleson, Administrative Engineer; Burton Polglase, Asst. Chief Engineer; Frederick Lamatsch, Consultant Engineer (Newspaper); Charles Harless, Vice Pres. and Director of Engineering; Emory Worthington, Chief Engineer; Adolph Zuckerman, Consultant Engineer (Magazine); William Henderson, Field Engineer; William Wieking, Asst. to Vice Pres. of Engineering; Joseph Auer, President; William Murphy, Asst. Sales Mgr. and Asst. Secy., and Herbert Schuffenhauer, Newspaper Press Supervisor.

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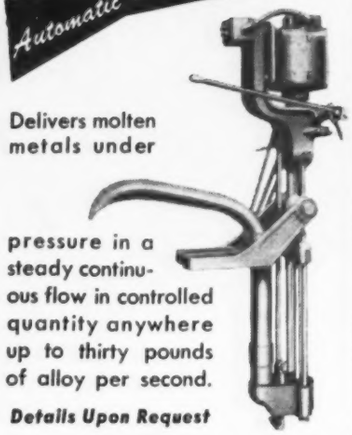
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Elects Officers—At the 76th Annual Meeting of the Board of Directors of Graphic Arts Industry, Inc., C. H. Russell, Editor and Publisher, Mankato (Minn.) *Free Press*, was elected President; H. F. Sheed, President, Sheed-Brown Mfg. Co., Minneapolis, Minn., was elected Chairman of the Board of Directors; and S. Walter Sears, President, Mono-Trade Co., Minneapolis, was re-elected President of Graphic Arts Educational Foundation, Inc. Paul J. Ocken is General Mgr. of Graphic Arts Educational Foundation, and Grace H. Downing is Executive Secretary. Shown here, from left to right, are: Dr. Ralph Casey, School of Journalism, University of Minnesota; Mr. Russell; and Gideon Seymour, Executive Editor, Minneapolis (Minn.) *Star and Tribune*.

Spilman B. Gibbs has been appointed to work with Andrew J. Paulson of Chemco Photoproducts Co., Inc., on problems confronting photoengravers. Gibbs previously was associated with Powers Reproduction Co., New York, N. Y.

Richard A. Navratil has been appointed sales representative for Harris-Seybold Co. in the Cincinnati (O.) area, R. T. Cookingham, Central District Mgr., announced recently. Navratil will devote full time to servicing Graphic Arts firms in that area. He will assist Harris-Seybold's representative, W. F. Kinzeler, who has represented the company in Cincinnati for a number of years.

Wilbert G. Prasse has been elected President of The Oilgear Co. to succeed the late George H. Fobian. Prasse has been associated with Oilgear since 1927. Elected Vice Pres. and Director is Frank G. Kuhagen who has been with the company since 1925.

Five new members were recently added to the 25 Year Club of the Palm Brothers Decalcomania Co., Cincinnati, O. The new members, who were presented with watches at the club's annual meeting, are as follows: Charles P. Irion, Vice Pres.; Hazel Rupert, Inspection Dept., Frank A. Yaeger, Pressman; Donald Behrman, Art Director; and Edward L. Nickum, Lithographer. Max J. Palm, jr., President of Palm Brothers, presided at the meeting.

Max J. Palm, jr. (left), President, and Fred Meyer, Sales Representative, Palm Bros. Decalcomania Co., Cincinnati, O., are shown at the company's recent meeting of the 25 Year Club. Meyer has been with the Palm Bros. firm for the past 27 years and represented other decal firms for 25 years before that.

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By

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• Tomorrow's Finest Edition must be produced with a mat combining two important qualities . . . First, a uniform, dependable, high shrinkage and second, the ability to produce sharp, clean, faithful reproductions. Both of these qualities are available to you in Beveridge High Shrinkage Mats . . . today's best mat for tomorrow's finest edition.

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The election of H. Franklin Mayfield (left) as President and Albert R. Bourges (right) as Chairman of the Board of Bourges, Inc., was announced recently.

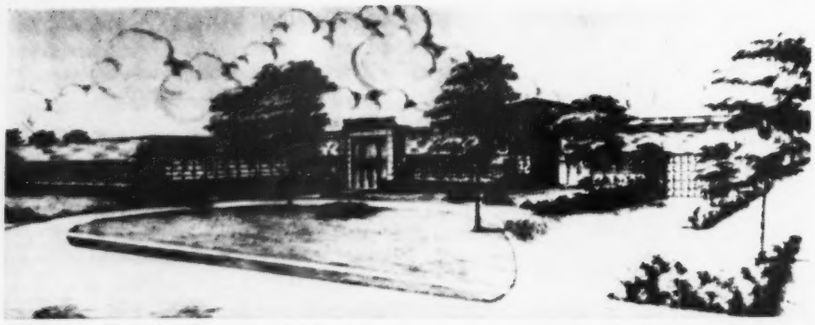
Mr. Bourges is retiring from active participation in the business, but will continue to direct research projects for developing and improving Bourges products. Mayfield has been general manager and secretary-treasurer of the firm since 1945, and succeeds Bourges as president. Mayfield will direct planning for an expansion program which includes the firm's recent move to larger quarters at 80 Fifth Ave., New York. J. Bourges Mayfield, Mr. Bourges' daughter, remains as Vice Pres. and Art Director.

A. B. (Tony) Cronin of New England Fibre Blanket Co. has been transferred to the New England and Northeastern territory of the company, according to Francis H. Grenier, General Mgr. Cronin was formerly West Coast representative of the firm. Grenier also announced that Edward K. Sparks will take over the West Coast area. Sparks has been covering the Southeastern territory for the company and was formerly pressroom superintendent of the Los Angeles (Calif.) *Examiner*.

The U. S. Navy's Meritorious Civilian Service Award for outstanding performance of duty was presented recently to Floyd C. Larson, Ninth Naval District Publications and Printing Officer and First Vice Pres. and Chairman of the Board of Directors of the Chicago Club of Printing House Craftsmen, Inc. The award, Larson's fourth Navy honor, was based on his management of the Navy's printing and graphic reproduction facilities throughout the 13 states of the Ninth Naval District.

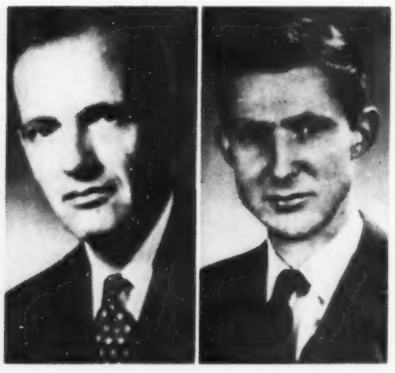
The appointments of Henry Myers as Sales Mgr., and Edward F. Kennedy to the Field Service Staff of Mosstype Corporation were announced recently by Alexander R. Bradie, Vice Pres. and General Mgr. Myers, who has served with Moss-

Two Kelly Presses Installed — The recent installation of two ATF Kelley Three presses, size 25 in. by 37 in., at the Wartburg Press, Columbus, O., has been announced by American Type Founders. The presses will be used in the production of a weekly magazine, requiring a run of 86,000 copies. Shown here at one of the presses are, left to right, Dick Blank, ATF Serviceman, and H. W. Limes, Production Mgr. of the Wartburg firm.



New Vandercook Plant—Construction is now under way on a new $2 million plant for Vandercook & Sons, Inc. As shown in the above artist's drawing, it will be a modern one-story building constructed of steel and brick and erected ten miles northwest of Chicago's downtown section. The new facilities will house general offices, engineering department, and manufacturing area, as well as enlarging laboratory space for Vandercook Research, Inc., a subsidiary. According to E. O. Vandercook, President of the firm, the new plant will be ready for occupancy during the latter part of 1953. The three sons of the founder, R. O. Vandercook, have been active in the business for over 35 years. E. O. is concerned with research and sales, D. D. with engineering and F. R. with production.

type for the past eight years, will make his headquarters at the company's main office in Brooklyn, N. Y. Kennedy will cover the Metropolitan New York and New Jersey areas.

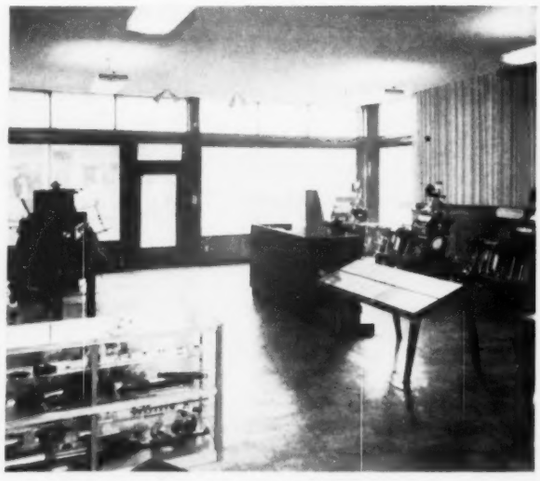


Charles A. Rietz (left) has been appointed to the new position of Research and Development Director of Interchemical Corporation, Printing Ink Div. and will make his office at the divisional headquarters office in New York. Rietz was formerly manager of the IPI's Eastern District printing ink factory in Elizabeth, N. J. He joined Interchemical in 1927 and is a graduate of the Illinois Institute of Technology. In his present position Rietz will coordinate the research activities of Interchemical and the Printing Div., and integrate them with the manufacturing and sales programs. Victor J. Porth, jr., (right) is the new Manager at Interchemical's Elizabeth factory. A chemistry graduate of Northwestern University, Porth joined Interchemical in 1937.

Carl J. Bergstrom was honored recently by a testimonial dinner given by the executives of Rathbun & Bird Co. and Dellenbarger Machine Co. of New York. Bergstrom is President of both companies and the occasion commemorated his 30th anniversary with these firms. More than 200 guests attended the affair in New York. Speakers were Paul Gitzendanner, jr. of Gitzendanner & Muller, Grant Yerbury and Bernard Wolf.

Bruno A. Borck has been named Manager of the Cleveland Agency of Mergenthaler Linotype Co., succeeding Charles J. (Barney) Borntraeger, who has served as its manager since the agency was established in 1951. Borck, who has been with Linotype for almost 28 years, has served in the sales and service departments of the company's Chicago Agency since 1935. He spent 13 years as service manager in Chicago and, in 1949, was named the agency's manager of sales service. Borntraeger, in leaving the Linotype company, completes seven years' service, during which time he served as a production engineer in Iowa, Nebraska and Ohio, before assuming the duties of manager of the Cleveland Agency.

New Heidelberg Branch in Ohio—Shown here is the sales and demonstration room at the new regional headquarters for Heidelberg Eastern Sales Co. opened recently at 227 N. Third St., Columbus, O. The headquarters will service Ohio and adjoining states. Its facilities include a pressmen's school, central parts depot and provision for service and courtesy-service programs. William K. Maxon, Sales Mgr. of the company, has appointed James D. McCann as Regional Mgr. in charge of the new operations. The Columbus headquarters is also the base for a fleet of demonstration vehicles used for demonstrating Heidelberg presses at printing plants.



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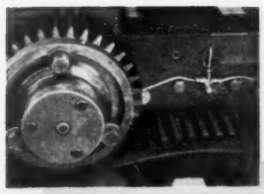

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Aaron C. Horn, Chairman of the Executive Committee of Sun Chemical Corp., died November 26 at his residence, 160 Central Park South, New York. He was 76 years old. Until his death Mr. Horn was continuously active in the affairs of Sun Chemical, of which he was a Director.

Nelson H. Jackson has been appointed Eastern Mgr. of the William C. Herrick Ink Co., Inc., according to an announcement made by John J. Fields, III, President. Jackson formerly was associated with the International Paper Co., and the J. M. Huber Co. He will be in charge of metropolitan New York City and the New England States for news ink sales.

Christian Steidinger, retired president and founder of Steidinger Press, New York, N. Y., passed away on December 23. He was 79 years of age. Death occurred at Mr. Steidinger's winter home in Sarasota, Fla. He was a member of the Club of Printing House Craftsmen of New York, Inc., and Graphic Arts Square Club. Following retirement a year ago, Mr. Steidinger was succeeded by Samuel Stone as President, with his eldest son, Herman, as Vice President.

Link-Belt Expansion

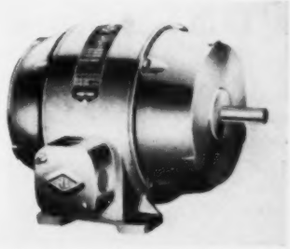
Link-Belt Co. recently opened a 300,000 sq. ft. plant in Colmar, Pa., for the manufacture of conveying and processing machinery. The Colmar plant, designed and built by the Austin Company, is Link-Belt's 17th.

Equipment & Supplies

(Continued from Page 17)

Fast Drying Adhesive

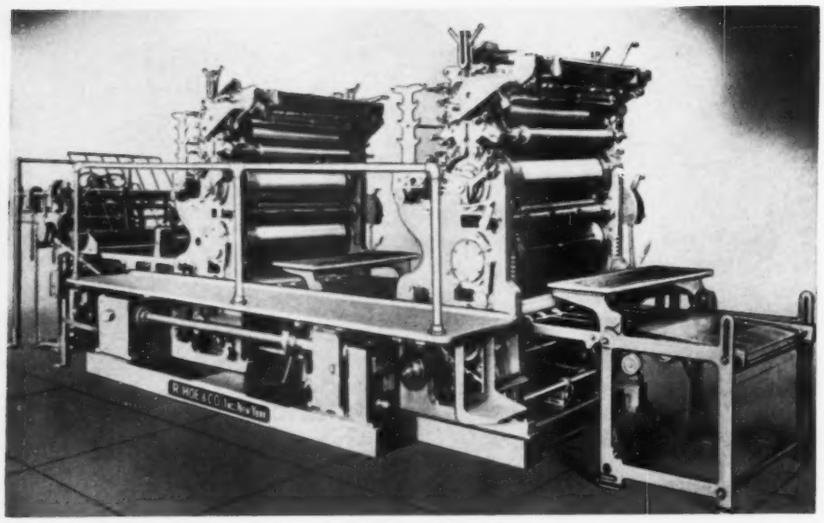
E. I du Pont de Nemours & Co. has developed a synthetic resin adhesive for bookbinding which it claims will dry in seconds. The firm states the hot melt adhesive forms a flexible bond that is not affected by humidity. Non-protein in character, the sponsor claims rodents and insects are not inclined toward the chemically created substance. Du Pont reports that one printing company using the adhesive produced 330 pocket books a min. from one binding machine. Please refer to PEE No. 506 if further information is desired.



Multi-Speed Motors — Reuland Electric Co. states that a single unit of its Multi-Speed motor is designed for operation at different speeds to fit the needs of special jobs. The motors are available in either 2, 3 or 4 speed ratings. The constant torque model is designed especially for installation on printing presses, conveyors, air compressors, etc. Sponsor reports that with this motor the horsepower output varies directly with the r.p.m. Other models available are the variable torque and constant horsepower types. Motor sizes range from ½ h.p. to 150 h.p. The Multi-Speed motors can be furnished in either standard, totally enclosed, splash-proof or explosion-proof designs. For additional information, please mention PEE No. 520 in your request.

Metal Decorating Press

FASTER speed is claimed for the recently introduced Hoe Metal Decorating Press by R. Hoe & Co., Inc., which is designed for offset printing of metal sheets in single, two, three and four color press runs. Design of the press permits the automatically fed metal sheet to



Announced by R. Hoe & Co., Inc., is this metal decorating press which carries the automatically fed metal sheets to the impression cylinder grippers on a horizontal plane through all printing units.

Equipment & Supplies

(Continued from Page 71)

be carried to the impression cylinder grippers on a horizontal plane through all printing units.

According to the company, the leveling of the infeed provides control of the sheet throughout its travel for registering at high operating speeds. Magnetic rollers are included as regular equipment on the press.

For tandem presses, printing units are mounted on the same height bed plate and the pressman's platform is on one level. The press is equipped with an improved drive permitting installation of the motor under the press.

Hoe engineers state that a single unit may be converted to a tandem press since all units are interchangeable. Further information is available by mentioning PEE No. 508 in your request.

Hand Cleaner

MAGNUS Cob Hand Cleaner is formulated for women employees or those desiring a cleaner with a soft, mild abrasive, according to Magnus Chemical Co. It is described as a lightweight free flowing powder containing corn cob meal as the abrasive. Magnus Cob Cleaner contains Lanolin and the toilet grade soap used is of pH 7.5 alkalinity. Sponsor claims it produces a good lather and rinses readily, and will not rot, ferment, attract vermin or clog drains. It is available in 90 lb. and 185 lb. drums. Samples may be obtained by mentioning PEE No. 510 in your request.

Flexitype Service

FLEXITYPE service for the Detroit, Mich., area has been announced as available by the Michigan Typesetting Co. Type may be stretched or condensed by the Flexitype photo typographic method. Sponsor states Flexitype can produce outline letters from solid type faces, italicize or back-slant roman

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The NOLAN STEREOSAW . . .

Now within the reach of any budget . . . a husky heavy-duty StereoSaw that will handle full-page type-high casts rapidly and efficiently.

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Husky work table . . . 28x36" heavily ribbed and hinged at the back for quick and easy blade changing. **Convenient saw control** . . . handwheel raises and lowers blade with positive, non-slip action. **Rugged Arbor Mount** . . . two large heavy ball bearing pillow blocks in exceptionally heavy casting, entire unit enclosed in chip-proof housing. **Powerful Drive** . . . heavy-duty 2-HP motor with double V-belts completely enclosed. **Complete** . . . with square-up gauge, safety shield, tidy gauge and chip buggy. Get detail on this time-saving, money-saving saw.

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In 1940		In 1953
40	Bales of Cotton	11
328	Crates of Eggs	115
2611	Bushels of Wheat	1074

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1. You have, for years, continuously given us all the orders we could build (20,000 BAUMFOLDERS) thereby making possible—
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2. Our gratitude is expressed in taking but a token profit.
3. The pay-off of this truly American COOPERATION is that your low-priced, "Gold-Mine" BAUMFOLDER will, every year, pay for itself . . . over and over again.

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HIGH SHRINK MATRIX MOLDING COMBINATIONS
Neoprene Blankets (⅛", 3/16", ¼")
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ANPA Plastic Blankets (.125, .160)
Tingue Foundation Molding Blankets (.062, .083)
Tingue Combino Molding Blankets (.083, .093)
Red Fibre Slip Boards (.032)

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faces, change the proportion of ads, and make line drawings lighter or heavier in tone. Maximum printing area for Flexitype proofs is 17 in. by 22 in. For further information, please mention PEE No. 501 in your request.

Index System Service

PRODUCTION of a complete or related part of a guide or index has been announced as available from G. J. Aigner Co. Sponsor states the service covers any kind of index system desired, printed on any kind of paper. Die cutting, reinforcing, slotting or drilling operations are also available in conjunction with the index or guide. Tabs made of cellulose acetate, real or imitation leather, metal or cloth of any size or shape are included in the service. For more information, please mention PEE No. 519 in your request.

Turner Distributorships

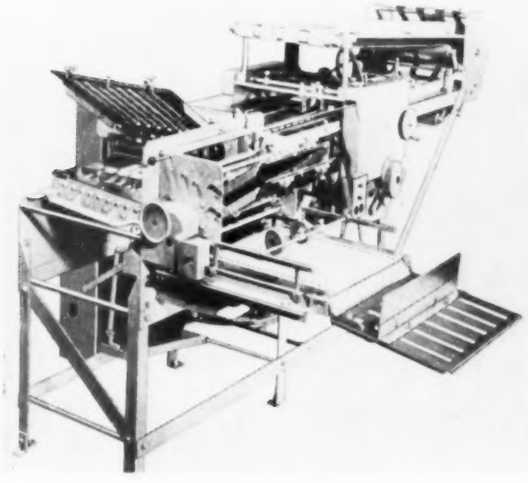
DISTRIBUTORSHIP of the Master Folding Machine and the Pacemaker Tipping and Semi-Automatic Collating Machine has been awarded to Turner Printing Machinery, Inc. The Master Folder is designed to accommodate a 17½ in. by 22½ in. sheet. It is available with continuous air feed or friction feed, to make up to two parallel folds, followed by four parallel folds at right angle.

The Master Folder is equipped with an electrically controlled multiple sheet detector. The automatic air blast cut-off functions in conjunction with multiple sheet detector. The air filter in intake line is used to prevent paper dust and other foreign matter from entering the pump. Stock table tapes are equipped with an automatic take-up.

Standard equipment includes scoring, perforating and slitting wheels. Special attachments available for use with the folder include a pasting attachment, electrical counter and ¼ in. trim attachment.

The Pacemaker machine provides automatic operation of the tippers with collating from angle-cut paper cabinets. Operating speed is controlled by a variable speed mechanism. Collating, jogging and tipping of invoices, vouchers, purchase orders, double carbons and similar material are performed on the machine.

For further information, please mention PEE No. 511 in your request.



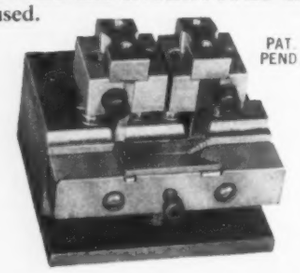
The 17½ in. by 22½ in. Master Folding Machine, distributed by Turner Printing Machinery, Inc. The machine is available with either continuous air feed or friction feed, to make up to two parallel folds, followed by four parallel folds at right angle.

Coated Offset Paper

A LIGHTWEIGHT coated offset paper for large volume runs called Shorewood Coated Offset has been introduced by Kimberly-Clark Corp. Sponsors claim coating is moisture-re-

DISTRIBUTOR STOPS? MISALIGNMENT? HAIRLINES?

These are common and **costly** matrix troubles wherever LINOTYPES and INTERTYPES are used.



The Align-A-Mat

This precision-built tool will correct worn lugs on mats so they will distribute properly. The same operation will also restore alignment. When sorting up fonts, old mats will align with new ones.

Over 400 leading large and small newspapers, job printers, trade and ad shops are using the *Align-A-Mat* and saving **time** and **money**.

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BOOTH'S ZINK CUT CEMENT

BEST for mounting cuts and solidifying type elements for standing ads. It mounts cuts quickly and holds them tighter. Used in printing plants all over the country. Get your order in now for a supply necessary for your needs.

Prices: 75c per tube, $6.00 per dozen in the United States.

E. A. BOOTH RUBBER CO.
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sistant, with pH level to prevent plate scumming, and increased pick resistance. Shorewood brand is available in basis weights of 50, 60 and 70 lbs. and is stocked in sheet sizes of 22½ in. by 35 in., 25 in. by 38 in., 35 in. by 45 in., 38 in. by 50 in. and 41 in. by 54 in., packaged in cartons, cases and skids. When requesting more information, please refer to PEE No. 513 in your letter.

Stereo-Microscope

THE Edscope Stereo-Microscope may be used for examining all kinds of printing plates and paper stock according to Edmund Scientific Corp. Sponsor claims that depth of focus and length of working space render the instrument ideal for working under magnification. Three pairs of matched eyepieces provide powers of 15X, 30X and 45X. Other features include rack and pinion focusing, interpupillary adjustment, and focusing eye-piece for eye

compensation. The instrument is removable from base for mounting on equipment, bench or stand. Working distance is 2¾ in., adjustable for extra height. Please refer to PEE No. 507 when requesting more information.

Bauer Topic Specimens

BAUER Topic in both Medium and Bold is shown in a four page specimen folder issued by Bauer Alphabets, Inc. A two-page insert contains specimens of Bauer Topic alternate characters. The Medium and Bold typefaces are available in 8, 10, 12, 14, 16, 18, 24, 30, 36 and 48 pt. sizes. The alternate characters in the same weights are available in 18, 24, 30, 36 and 48 pt. sizes. Copies of the specimen sheets may be secured by mentioning PEE No. 504 when writing.

Book Gluing and Lining Machine

THE Sulby Liner and Back-Stripper is designed to do the gluing and lining of books in one operation, according to Hambro Machinery Div. The machine is intended for flat back books, and also for books to be rounded but not backed. Work up to 14 in. long and 3 in. thick may be accommodated. Speeds are reported up to 3000 per hr. The alternative glue system provides for the use of hot glues only, or the combination of hot and cold polyvinyl type adhesives. More information may be obtained by mentioning PEE No. 517 in your request.

Plastic Binding Machines

DESIGNED for plastic binding operations are a foot-powered punch and a foot-powered binding machine reported by General Binding Corp. Sponsor claims the two machines enable

The Model 16 FB Foot-Power Binding Machine announced by General Binding Corp. Sponsor claims the machine enables operator to bind more than 300 books per hr.

an operator to produce more than 300 books per hr. The GBC Model 16 FP Foot-Power Punch may be operated with the operator either standing or sitting while punching using either foot. The company points out that both hands remain free to insert and remove sheets. The Model 16 FP is equipped with dies, frame and other accessories for punching of loose sheets. Foot power actuation of the GBC Model 16 FP Binding Machine frees both of the operator's hands for insertion of punched sheets and covers. A sample assortment of full length plastic bindings is included with each machine. Please refer to PEE No. 509 when requesting more information.

(*Continued on Page 76*)

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"A Trusted Name in the Printing Industry"

CLASSIFIED ADVERTISING

ALL CLASSIFICATIONS

$.75 per line 1⅜" wide. Minimum ad 5 lines, 29 characters per line. Cash with order.

CLOSING DATE—15th of Month preceding Date of Issue

We will forward all mail addressed to Box Numbers. When answering Box Numbered ads, address as follows: Box Number . . . PRINTING EQUIPMENT Engineer, 1276 West 3rd Street, Cleveland 13, Ohio.

STAR CUT CEMENT

Famous since 1936, hundreds of users testify to the effectiveness of STAR CUT CEMENT. Do a better job of mounting photoengravings, stereotypes and electrotypes by using STAR CUT CEMENT. Composing, stereotype, electrotype and photoengraving executives must see that the mounting job is done right. They know the value of a cement that permits mounting cuts quickly and holds them in place. Be sure to use the PROVED cement—STAR CUT CEMENT.

65c per tube—$5.50 per doz.
$5.00 per doz. in 2 doz. lots.
$4.50 per doz. in gross lots.

STAR CEMENT COMPANY
45 Malone Avenue
Belleville 9, N. J.

MEN WANTED • POSITIONS OPEN

Litho-Engineer	$6,000-$8,000
Estimator—Letterpress—Admin. Asst.—Florida	OPEN
Admin. Asst. Offset—Letterpress—Business Forms	OPEN
Production Man—Offset—Letterpress—Age 25-35	$7,000

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Dept. PE-1, 307 E. 4th Street, Cincinnati 2, Ohio

"Any Measure—"

Write for this new booklet that tells how the Mohr Saw produces odd-measure machine composition Instantly—Automatically—Accurately—At Least Cost

MOHR LINO-SAW COMPANY
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ELECTRICAL EQUIPMENT

Unit Press Drives . . . Reels . . . Automatic Tensions . . . Speed Pasters provide safety and reliability with economy. Whether large or small . . . letterpress or offset . . . your press-room can rely on Cline-Westinghouse Electrical Equipment.

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WEB DRYING APPARATUS
for ROTAGRAVURE • WEB-OFFSET • ANALINE LETTERPRESS

B. OFFEN & CO.
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THE DOYLE INFRARED DRYER
Patented
for all types of printing machinery

THE DOYLE VACUUM SHEET CLEANER
Patented
Removes dirt, dust, lint and dry spray from paper while printing

The J. E. Doyle Co., 1220 West 6th St., Cleveland 13, Ohio

NEWSPAPER & PRINTING PLANT ENGINEERING

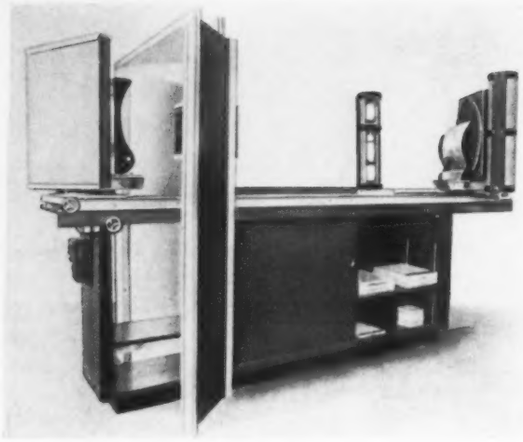
NEW BUILDINGS • MODERNIZATION
SURVEYS • CONSULTATION

ROBERT W. DICKERSON
2063 EAST 4TH STREET • CLEVELAND 15, OHIO

SPECIALISTS
in Moving Printing Equipment

We specialize in dismantling, moving and erecting newspaper and commercial printing presses as well as printing equipment of all kinds. Experienced, trained personnel equipped with modern equipment moves one machine or a complete plant any distance required. All contracts are handled promptly and are fully covered by insurance.

The ALLMEN CO. 8416 LAKE AVE. CLEVELAND 2, O. • OLympic 1-2300



View of Modi-Graphic, Incorporated's photodimensional and proportioning control camera for repro-art and type line reproduction proofs. May be used as photo-copy camera on any type of paper or film. Also it may be used for line photography and for straight copy work. Camera adaptable to any stand and darkroom layout.

Equipment & Supplies

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Fotomaster Photodimensional and Proportioning Camera

By J. S. MERTLE, FRPS,FPSA

A TREND in the Graphic Arts is toward artistic typographic and illustrative design. Typographers, artists, typographic compositors and platemakers are faced with demands for distinctive illustrative effects. The demands frequently involve changing not only the appearance of type matter, but also the proportion of an entire layout or advertisement. Such requests formerly necessitated expensive and time-consuming effort on the part of the art department, composing room and photographic gallery.

Through the use of the Fotomaster Camera recently announced by Modi-Graphic, Incorporated, photographic prints may be produced from a type proof, drawing, layout or photograph, the print serving as a copy or original for reproduction by any photomechanical process. These reproductions can be produced for or used by advertising agencies, artists, typographers, photographers, platemakers, as well as letterpress, offset, gravure and silk screen printers.

The Fotomaster Camera can be used to provide an unlimited array of special effects from any given original. The height of any original can be expanded without increasing the width, or the width can be increased without expanding the height of the reproduction. Thus the photodimensional control permits the reproduction from the copy to be altered to any style or shape desired.

The Fotomaster Camera equipment was originally devised (1943) by a typographer and amateur photographer, Harvey C. Olson, who later was assisted in the improvement of the apparatus by his brother, Raymond B. Olson, an experienced photomechanical worker. The basic principle of photographically controlling the dimension and shape of copies did not originate with the Olson brothers. It has been known for years, but the Olsons designed apparatus specially intended for the purpose. The apparatus does not consist of auxiliary or extra gadgets to be attached to regular process cameras. Rather, it is comprised of a specially designed Fotomaster Camera, together with units called ModiPrisms, ModiForms, ModiStat and ModiTrol.

Although primarily intended for photodimensional copy control, the camera can also be used for line photography and straight copying. Equipped with two apoprocess lenses of different focal lengths and an interchangeable lensboard, the camera permits enlargements of two diameters, and reductions four times smaller than the copy.

To facilitate a wide array of effects, the camera copyboard and filmholder (both of which measure 20 in. by 24 in.) can be jointly or independently turned within an angle of 180 deg. Focusing is performed by ocular examination of images on a ground glass, and the movement of the copyboard is controlled from the rear of the camera during focusing.

Additional aids for obtaining unusual effects are the ModiPrism and ModiForm optical units. These are made of a colorless and transparent methyl methacrylate plastic. The units are quickly interchangeable. The concave lenses and prisms are filled with an inert and water-clear liquid possessing a high refractive index.

The Modi-Stat unit of the Fotomaster camera is an arrangement of surface-coated mirrors by which photostats or laterally reversed negative and positives can be produced on photographic papers and films by projection of images through the camera lens. Useful for layout preparation, the unit is attachable to the back of the camera (inside the darkroom), and makes prints up to 14 in. by 17 in.

A number of reproportioned type effects which may be obtained with Fotomaster Camera and prisms and special formed optical units.

The ModiTrol unit is a photocomposing (step-and-repeat) device attachable to the paper support of a vertical enlarger or projector. In addition to producing multiple (gang) images, the unit is useful for introducing shaded effects and for thickening or thinning horizontal or vertical lines, as well as for correcting distortion. The ModiTrol unit is of particular utility when used in conjunction with methods of obtaining typographic and illustrative effects by means of mul-

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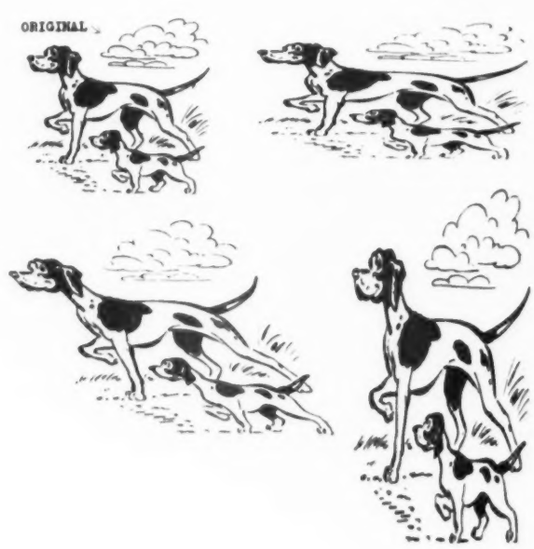

The original drawing (upper left) may be reproportioned in the Fotomaster Camera to (1) Reproduce normally; (2) hold same width but greatly elongate depth as shown at lower right; (3) Hold depth but increase width, and to (4) Reproduce in any proportion with respect to width and depth by enlargement. Entire type layouts or advertisements likewise may be reproportioned.

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Mr. Mertle's appraisal of the Fotomaster Camera is supplemented by additional information by Modi-Graphic, Incorporated as follows:

Some of the operations executed with this camera are as follows: (1) Stretch or condense vertical or horizontal dimensions; (2) Increase or lighten weight of vertical or horizontal lines; (3) Make outlines from solid type faces; (4) Slant (italicize) any face or copy, left or right; (5) Curve a line of type of copy; (6) Create perspectives in any shape or degree of vanishing points; (7) Create shadows and shades, halos and base relief effects; (8) Make two-color separations with no undercutting by hand; (9) Convert a circular design into an ellipse or oval or *vice versa* for use on curved press plates where stretch around the cylinder is a problem.

Also from repro-art or type proofs the following operations may be executed: Pre-shaping and pre-proportioning of carton copy, container perspectives, pre-curving of labels and cans (cylindrical objects) in perspective as well as waving and rippling.

Specifications for Fotomaster Camera with standard accessories are as follows: Length, 10 ft. 3 in.; width, 2 ft. 2 in.; height, 6 ft.; copy brand and film holder, 20 in. by 24 in. Two lenses as follows: 14 in. Goerz Apochromat Artar, f9 coated process lens, and 7½ in. Anastigmat enlarging lens, f4.5 coated. Lights: Four 300 w. reflector floods and two G.E. 1500 w. T 24/15. Modi-Trol Unit, 11 in. by 14 in. table size. Modi-Stat Unit, 15 in. by 20 in. maximum print size. Six prisms and 12 Lucite shapes and forms.

Full information obtainable by mentioning PEE No. 495 in your request.

New Keller Location

The Washington, D. C., office of George R. Keller, Inc., has moved to 1228 Mt. Olivet Rd., N. E. Telephone number of the new office is LAwrence 6-7761.

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Rouse, H. B., & Co 60

Scott, Walter, & Co 7
Sta-Hi Corporation 1
Standard Process Corp 6
Star Cement Co 75
Strong Electric Corp 11
Super Speed Printing Machinery, Inc 18
Surface Combustion Corp 67

Timken Roller Bearing Co 9
Tingue, Brown & Co 68

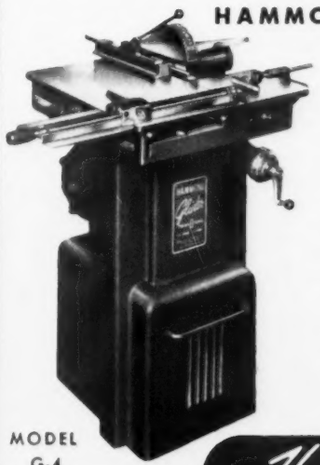
Vandercook & Sons, Inc 6

Welch Counter, Independent Pub. Co 68
Wetter Numbering Machine Co 67
Wood Flong Corp 67

Step up and saw with a

TRIMOSAW

FOR PRECISION SMOOTHNESS SPEED



MODEL G-4

HAMMOND *Glider* TRIMOSAW

The Hammond Glider TrimOsaw is "The Saw with the Ball Bearing Table". It is the finest ever built by ourselves or anyone and is the standard of comparison.

HAMMOND *Mercury* TRIMOSAW

The Hammond Mercury TrimOsaw is "The Saw with the Ball Bearing Gauge". It is the best of all the other makes as it has all the famous Glider features other than the ball bearing table.

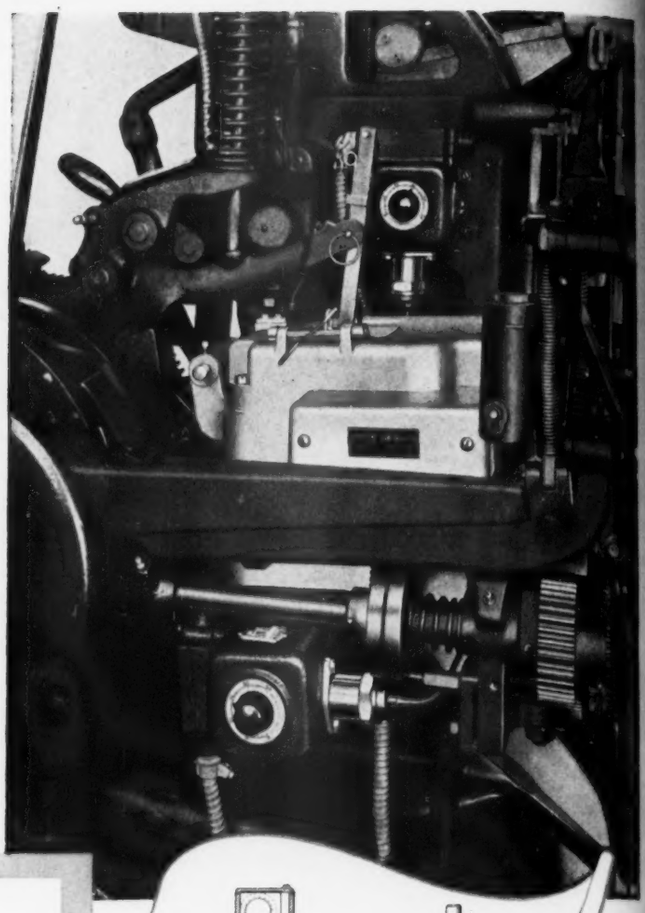
MODEL M-9

Hammond Machinery Builders INC.

1604 DOUGLAS AVENUE • KALAMAZOO MICHIGAN

Sound . . .
uniform slugs
HOUR AFTER HOUR

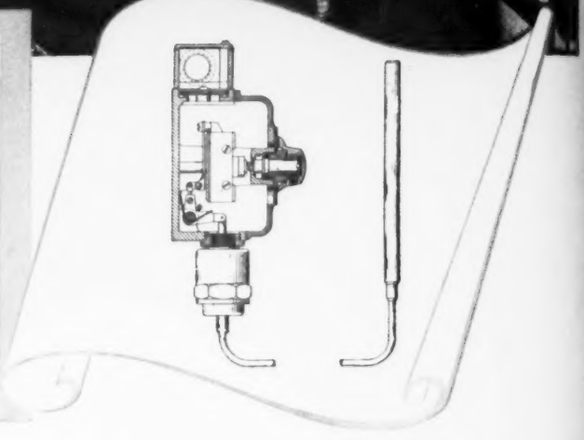
Casting good quality slugs requires precise temperature control every step of the way. Here's how Intertype does this *accurately* and *automatically* . . . not only in the pot, but in the mouthpiece and mold as well.

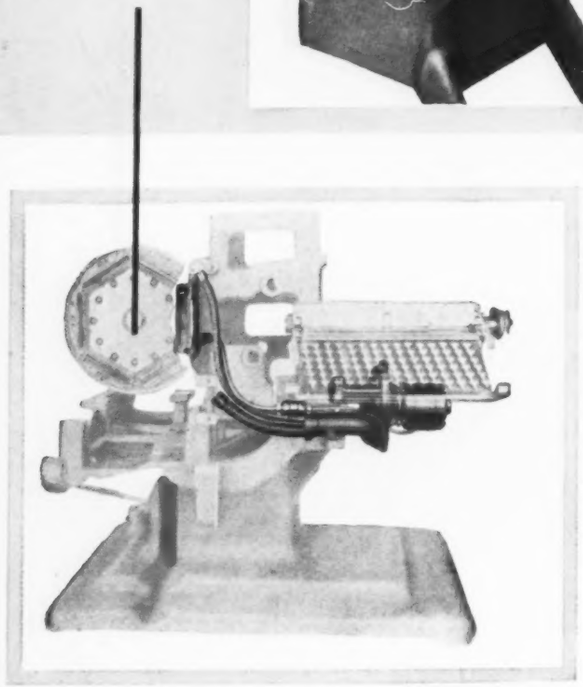


In the Pot and Mouthpiece . . .

Two separate, highly sensitive Partlow controls maintain optimum temperatures in both areas. Quick-acting microswitches eliminate lag and keep temperature constant. These switches are extremely reliable . . . have no contact points to corrode or burn out. The Intertype crucible is larger. This *extra crucible capacity* also contributes to uniform temperatures.

Write for New 80-Page Intertype C,H,V,F,G Catalog





And in the Mold . . .

The Intertype Autoblow, an automatic blower controlled by a thermoswitch behind the mold disk, keeps the mold at correct temperature even when casting large size slugs *continuously.*

THESE PRECISION CONTROLS, all applicable to outstanding Intertype® machines, are *more* good reasons why it pays to *Look to Progressive* INTERTYPE.

Century Schoolbook and Lydian

INTERTYPE CORPORATION

Brooklyn 2, N.Y. • Chicago 10, Ill. • San Francisco 11, Cal.
Los Angeles 15, Cal. • New Orleans 10, La. • Boston 10, Mass.

In Canada: Toronto Type Foundry Co. Ltd.
Toronto, Montreal, Winnipeg, Vancouver, Halifax